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# An expanded paradigm for the body/mind continuum : its educational implications.

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# AN EXPANDED PARADIGM FOR THE BODY/MIND CONTINUUM: ITS EDUCATIONAL IMPLICATIONS

A Dissertation Presented

By

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School of Education

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ABSTRACT

An Expanded Paradigm for the Body/Mind Continuum:
Its Educational Implications

(February 1982)

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The basic premise is that the dualistic, reductionist, mechanistic rational model of the universe developed by individuals such as Descartes and Newton has led to an experienced split between the body and the mind which is at the heart of the growing cultural crisis in the west. This dissertation describes an emerging holistic paradigm which posits a body/mind continuum. This new challenge to the rational model finds support in a number of diverse sources: modern physics, the world views of a number of classical cultures, several body-based psychological therapies indigenous to the west, and recent work in brain research and holographic studies. From an exploration of these sources, we will identify a perspective from which the body/mind split is resolved into a continuum.

A corollary to the basic premise is that a culture's view of and attitude toward the physical body structures a number of its key sciences and disciplines in a primary way. The theory and practice in such diverse fields as psychology, medicine, education and physical education are all radically affected by the prevailing view of the body. The process of developing this new paradigm will help us explore the role of the body in education generally, in health education and in physical

education. This exploration leads to an expanded model of psycho-physical cultivation which is called "kinetic education." Answering John Dewey is call for psycho-physical education, lest our education become mis-education, the kinetic education model can become a valuable tool in alleviating problems as seemingly diverse as stress in the corporate world, inadequate health care in the cities or in poorer nations, difficulties in learning and behavior in our school systems, and inadequacies in our medical education. Through the psycho-physical cultivation of kinetic education, we can experience directly the reality of the body/mind continuum and the holistic paradigm. From this experiential base, we can both learn and experience within ourselves the interconnected realities of the new physics, the classical cultures of China and India, and the electronic webs of computers and telecommunications systems. We can also develop that internal discipline so clearly lacking in our present system, and so necessary as a foundation for the lifetime evolution of true education, health and fitness.

Dedicated to

Joe & Guin Miller

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# CHAPTER I

## INTRODUCTION

We all feel that it is very reasonable and important to ask ourselves how we should try to conduct our lives. The answer is, in my opinion: satisfaction of the desires and needs of all, as far as this can be achieved, and achievement of harmony and beauty in the human relationships. This presupposed a good deal of conscious thought and of self-education. It is undeniable that the enlightened Greeks and the old oriental sages had achieved a higher level in this all important field that what is alive in our schools and universities.[1]

- Albert Einstein

In the present state of the world, it is evident that the control we have gained of physical energies, heat, light, electricity, etc., without having just secured control of our use of ourselves is a perilous affair. Without control of our use of ourselves, our use of other things is blind; it may lead to anything.[2]

- John Dewey

Education is the only sure method which mankind possesses for directing its own course. But we have been involved in a vicious circle. Without knowledge of what constitutes a truly normal and healthy psycho-physical life, our professed education is likely to be mis-education.[3]

- John Dewey

A standard of psycho-physical health . . . provides the conditions for the central direction of all special educational processes. It bears the same relation to education that education bears to all other human activities . . . It contains in my judgement the promise and potentiality of the new direction that is needed in all education.[4]

- John Dewey

(Psycho-physical education's) . . . proper field of application is with the young, with the growing generations, in order that they may come to possess as early as possible in life a correct standard of sensory appreciation and self judgement. When once a reasonably adequate part of a new generation has become properly co-ordinated, we shall have assurance for the first time that men and women in the future will be able to stand on their own feet, equipped with psycho-physical equilibrium, to meet with readiness, confidence and happiness instead of with fear, confusion and discontent, the buffetings and contingencies of their surroundings.[5]

- John Dewey

The splitting of the atom has changed everything save our mode of thinking and thus we drift toward unparalleled catastrophe.[6]

- Albert Einstein

Thesis statement.

The basic premise of this dissertation is that the dualistic, reductionist, mechanistic rational model of the universe developed by individuals such as Descartes and Newton has led to an experienced split between the body and the mind which is at the heart of the growing cultural crisis in the west. This dissertation will describe in a preliminary way an emerging, expanded paradigm which posits a body/mind continuum. This new paradigm is challenging the dualistic model and finds support in a number of diverse sources: modern physics, the world views of a number of classical cultures, several body-based psychological therapies indigenous to the west, and recent work in brain research and in holographic studies. The exploration of these sources will help us identify a perspective from which the body/mind split is resolved into a continuum.

A corollary to this basic premise is that a culture's view of and attitude toward the physical body structures a number of its key sciences and disciplines in a primary way. The theory and practice in such diverse fields as psychology, medicine, education and physical education are all radically affected by the prevailing view of the body. The process of developing this new paradigm will help us explore the role of the body in education generally, in health education and in physical education. This exploration will lead to an expanded model of physical cultivation which we will call "kinetic education." Such a model will hopefully prove a valuable tool in alleviating problems as seemingly diverse as stress in the corporate world, inadequate health care in the cities or in poorer nations, difficulties in learning and behaviour in our school systems, and inadequacies in our

medical education.

Structure of thesis.

This dissertation will outline the historical, cultural and scientific background relavent to an examination of cross-cultural and cross-disciplinary paradigms. Chapter II will examine the roots of dualism and the ways in which the present reductionist scientific method (exemplified by Newton's mechanistic universe) structures much of the thought and practice in the fields of psychology, medicine, education and physical education. Chapter III will provide an examination of the sources and foundations of the expanding paradigm, starting with the new physics and the work of scientists such as Einstein, Plank and Heisenberg. The theory of relativity, quantum theory, the uncertainty principle, and other foundations of modern physics have major implications for the paradigm shift described here. Chapters IV will contain relevant material drawn from the classical cultures of China, Greece, Islam, India, Tibet, Japan, and Burma. In each case the respective world view and models of the body/mind, physical cultivation, and health education will be described. Surprising parallels in thought surface in a close examination and comparison of modern science with these ancient world views. Chapter V will examine the modern applications of the healing systems of the classical cultures. Chapter VI will explore the story of medical systems in nineteenth century America, including indigenous healing systems such as naturopathy and osteopathy, all of which are included in the growing interest in an holistic approach to health.

Chapter VII will identify some modern developments in various fields of therapy which have been influenced by and/or show some parallel

assumptions with the more classical world views. Included in this group are the work of individuals such as F.M. Alexander, Moishe Feldenkrais, Wilhelm Reich and Alexander Lowen. Chapter VIII will attempt to provide an integrative social and cultural context for all of this material through the theories of Marshall McCluhan and Buckminter Fuller -- the "global village" and "spaceship earth." Chapter IX will examine the brain research of Karl Pribram, David Bohm's work on holograms, and Ilya Prigogine's theory of dissipative structures, all of which provide an extremely suggestive and fertile basis from which to examine man's changing views of his relation to his world, leading to what might be called an ecology of the self. Chapter X will provide a synthesis of the diverse materials presented, and delineate the overview and uses of the new paradigm. Chapter XI will provide a tentative American model for "kinetic education," discussing how the paradigm of the body/mind continuum can be applied in our educational, corporate and medical world. Chapter XII will show how the Japanese have achieved a successful integration of a similar nature within their own culture. Chapter XIII provides a summation and conclusion, as well as a scenario of future implications based on our expanded parameters.

Methodology.

The methodology which will allow us to integrate these diverse materials into a perspective with some degree of coherence is, in effect, a combination of two models: David Bohm's holographic model and Geoffrey Chew's "bootstrap" model. In contrast to the orientation of "scientism," which operates from the adversary perspective that there are competing "right" models and "wrong" models, the "holographic bootstrap" approach

facilitates an interlocking, open-ended mosaic of many different models to describe complex interactions of phenomena. The holographic bootstrap approach accommodates a series of models, each of which is successful at explaining and identifying a certain limited part of any observed phenomenon. Each model has unexplained aspects, or parameters, and the parameters of one model can be explained by the parameters of another. These interlocking models then describe more and more of the phenomenon. To quote Chew: "a physicist who is able to view any number of different partially successful models without favoritism is automatically a bootstrapper."[7] With this approach data which does not fit a particular dominant model can still be acknowledged, absorbed and validated rather than be ignored or labelled "unscientific" and dismissed because it doesn't justify one's prejudices.

Heisenberg's uncertainty principle provides strong support for the bootstrap perspective, with its acknowledgement of the ways in which the observer and observed, the experimenter and the experiment, are part of a single system. The observer is part of the experiment, and the perspective of the observer is one of the major determinants of the outcome of the experiment. A classic example of this principle is light, which is seen as either a particle or a wave, depending on the nature of the experiment. In terms of our subject, the holographic bootstrap approach to the body/mind continuum allows for integrating the models of other sciences and other cultures and validates their many perspectives.

Since the western reader is typically trained to look at one model at a time, it is important to note the unavoidable difference of organization and

structure required by the holographic bootstrap approach. An understanding of the framework of this thesis emerges only after a careful reading of the individual modules; the specific ways in which the various models interlock and interrelate can best be appreciated at the end of the experience of the thesis, no matter what kind of cognitive framework is presented at the outset. This final construction will reveal in the apparent disparateness of the various sources a fascinating and stimulating structure all its own, a mosaic of seemingly complete modules, integrated and interconnected in their own elegant fashion.

Limitations.

There is one major limitation in our approach -- language. Each language has its own strengths and weaknesses. English, with its extensive technical vocabulary, is excellent for both commercial transactions and abstract thought. However, it is weak in may ways. Anyone who has tried to translate into English mystical Sufi poems, precise and concrete Tibetan spiritual maps, vast Hindu philosophical speculation and imagery, paradoxical Chinese stories, or evocative Japanese haiku poems, can sense the problem. Indeed, each language contains, defines,limits and expresses the cultural, artistic and intellectual perspectives that comprise the very paradigm of the culture itself. The view of language as the expression of cultural mind is important in understanding the paradigms underlying the perspectives of diverse cultures. In translation, Arabic's rich and rhythmic poetry of expression dries into bombastic scholasticism. Tibet's deep spiritual experience crumbles into abstract prose that would not do justice to the most abstruse bio-chemical textbook. Sanskrit's encompassing

subtlety of differentiation and vast perspectives of timeless space often degenerate into English translations that can sound like abstract ramblings, cartoon-like stories, and long-winded, nitpicking, philosophical monologues. Chinese -- earthy, practical, paradoxical, with its tonal range and sense of social interconnectedness -- flattens into one dimensional cliches and disconnected tangents. Japanese, rich in implication and understatment, is so rife with subtle multiple meanings that its spare haikus are in essence puns within puns, richly layered and evocative. English translations catch only a flickering, one dimensional shadow of these cultural and linguistic fabrics.

Many of the new high energy particle physicists have an extremely difficult time expressing their findings in English. Some have relied upon what appears to be whimsy, such as describing the different "flavors" of the quarks. Many of these physicists as we shall see have relied upon the language of mystical experience drawn from various classical cultures to indicate the nature of their scientific observations. Indeed, some of the more successful scientists such as Siu, who wrote the Tao of Science, or Chew, who developed the bootstrap theory, come from Chinese or Japanese American families, and thus have a greater exposure to both modern and classical perspectives.

An additional difficulty is that the structure and tradition of English is linear, whereas our message is non-linear. The Medium is the Message by Marshall McLuhan is an example of an attempt to express its message concerning the electronic media web environment with its own non-linear presentation in a linear language and medium -- a book. As for our subject,

the old paradigm and models on which this culture is based are linear. But the new paradigm and model of this paper are non-linear in content and construction. My attempted solution has been to weave the linear threads of theme through the multi-tiered multi-level models of the mosaic. Hopefully, the language and structure of this paper will reflect its subject matter. Various illustrations and charts will be employed to help point to an emerging language of the body, holographic in nature, that can further illuminate our developing perspective. So this dissertation is but a flickering shadow of what it describes, an allusion to a vaster, richer, deeper and livelier whole.

Review of the literature.

The following works comprise a genre of recent books which explore and delineate the nature of paradigm shifts in science and society.

In The Structure of Scientific Revolutions, Thomas Kuhn provides some fascinating glimpses into how change takes place in a society and in its paradigms. His presentation stresses the leaps of intuition and insight that have marked our scientific revolutions. Historians of science and society have, in retrospect, ignored the intuitive aspects of these leaps. Instead, the revolutions in science have been traditionally presented as part of a rational, logical, inexorably determined process. At the time, of course, quite the opposite was the case. Kuhn describes the actual process of these leaps and the resulting conflicts, and then shows how scientific approaches have replaced one another and new paradigms or world views have arisen out of each 'scientific revolution.' This paper explores the emerging paradigm, applies it to the body/mind continuum, and examines the effects of this

application on society itself. Kuhn is a foundatin work for an analysis of the presently emerging paradigm.

In The Aquarian Conspiracy: Personal and Social Transformation in the 1980's, Marilyn Ferguson explores these paradigm shifts in their cultural and social as well as scientific contexts. As a journalist, Ferguson has gathered a large amount of data from a variety of fields. Her thesis, that there exists an unspoken 'aquarian conspiracy,' though eye catching and thus saleable, is rather dubious. What she does clearly show is a change in the basic world views of people in diverse fields ranging from education to medicine and physics. She also rather clearly explains one source of these shifts in her highly readable explication of modern scientific research. In short, she has provided a good overview which shows the extent of the paradigm shift while it is in progress. This dissertation will deal more fully with the cross-cultural as well as cross-scientific basis for this shift.

In the Tao of Physics, Fritjof Capra makes explicit the similarities between the world view of modern high energy particle physicists and the world view of the spiritual mystics of India, China and Japan, of Hinduism, Sufism, Buddhism and Taoism. This work is powerful in its impact and insight. Capra deals extensively with the problem of language. In particular he stresses the problems of translating meaning and experience from one language to another, from the mathematical language of physics to the abstract allusions of English. Here he shows how the language of the mystics best express the perceptions of the physicist. Capra's work has affected my own thesis. However, I have approached my research from the opposite direction, beginning with the insight and experience gained through

the classical psycho-physical exercises and then working my way back to the realizations of modern physics. Then I have used these models from physics to express an open ended, cross-cultural approach to the body/mind continuum.

Capra expanded on the trenchant observations of R.G. Siu in his classic, The Tao of Science. Many scientists from the time of Einstein and Jung have recognized the validity of oriental spiritual expression, but Siu touched more deeply, more explicitly. His pioneer work paved the way for that closer comparison of modern physics and eastern philosophy. Siu planted the seed that some twenty years later is flourishing in the works of Capra and Zukav.

Gary Zukav's The Dancing Wu Li Masters: An Overview of the New Physics deals with another problem faced in this thesis. The very organization of Zukav's work reflects the paradoxical mystic/physicist approach. Like Capra, Zukav acknowledges the extremely difficult problems of translation, as well as some of its joys and ironies. As an example, the Chinese words for physics are "wu li." But wu li has at least five different levels of meaning (Patterns of Organic Energy; My Way; Nonsense; I Clutch My Ideas; and Enlightenment). The five interwoven, interlocking, interacting and paradoxical levels of meaning give Zukav the five major organizational divisions of his work. And the dancing wu li masters are themselves the great physicists such as Einstein. The solution to a similar organizational dilemma for this material has been to present it as an open ended mosaic of different interacting models. Thus this thesis is structured around a holographic bootstrap mosaic of interlocking models.

Karl Pribram's Languages of the Brain: Experimental Paradoxes and Principles in Neuropsychology presents Pribram's holographic theory for the functioning of the brain. He also deals with problems of communication, translation and language itself within the brain. Pribram's work has many implications for other fields, as he has taken David Bohm's holographic theories and applied them to brain research. I have taken these theories one step further, and applied them to the human body. Specifically, I have presented a holographic view of the different organizational systems of the body and mind. Pribram's theory of the holographic working of the brain can be extended to include the workings of the mind itself. In effect, this paper posits a classical approach where the seat of the mind is not the brain.

My work has also been deeply influenced by the collected articles of David Bohm and Geoffrey Chew. Bohm, especially in Quantum Theory and Beyond, posits a holographic universe whose order is "implicate" and "enfolded". I have applied Bohm's theories to one area western science appears to regard as separate from that universe,the human body, its organizational systems, and the mind.

The collected articles of Geoffrey Chew, chairman of the Department of Physics at U. of California - Berkeley are essential to the thesis, its organization and its language. Chew's 'bootstrap' model posits an open ended mosaic of interlocking models to describe the strongly interactive nature of hadrons. Since the phenomena produced by these interactions is much too complex and paradoxical to describe with any one model, Chew has chosen to use different models for each facet of the phenomena. Chew

then views all of these seemingly separate models, not by choosing the "right" one, but by viewing them as an open ended mosaic where each model describes its own phenomena, and where the parameters interlock and overlap one with another. I have seen the human body, the mind, and their organizational systems as similarly complex, and have thus extended Chew's model to this study.

Our western perspective frequently presents us with an either/or choice. "Since this is right, that must be wrong. This is the truth, the only truth." In Chinese or Japanese culture, one finds an acceptance of paradox, multiple meanings and different perspectives. If a simpler model or unifying principle is found, it does not negate the complex model. Both can exist and interact, paradoxically, at the same time. One enriches rather than refutes the other. From one point of view, one is correct, from another point of view the other. Here is a recognition of multiple levels and perspectives of encompassing awareness, much like a television set that can tune to many channels, all co-existing at the same time. The philosophical basis of this paper is not the rational "either/or" but rather the classical "both/and," with its implied acceptance of paradox.

Further perspective has been provided by the works of Heisenberg. One aspect of his uncertainty principle is that there is no such thing as an objective observer separate from the experiment. The experiment and the observer are explicitly intertwined, and in many cases the perspective of the observer directly affects the outcome of the experiment. Thus I have presented these different models of the body/mind continuum from the cultural or scientific perspective from which they are seen and from which

they are derived. Therefore I have applied Heisenberg's principle to the study of culture and science itself.

The collected works of Marshall McLuhan and Buckminster Fuller have also deeply influenced my thesis. In Understanding Media, McLuhan creates the organization and language of his study, not from the linear book models, but from the nature of communication and the language of the media itself. He was among the first to recognize the web-world aspect of our electronic environment. As Capra did with physics and classical mysticism, I have also done with McLuhan's observations. Thus I have shown the similarity between the paradigm of the web world described by McLuhan and the paradigms of human experience of the body/mind continuum itself that derive from classical cultures. Like McLuhan, I have let my language and organization reflect my subject matter.

In Fuller's collected works we once again see the basic problems of communication, organization and language. Fuller, like McLuhan, has a penchant for brilliant pithy phrases which provide a clear perspective for a myriad of complex ideas and approaches. Operating Manual for Spaceship Earth provides a perspective with which to frame and view our complex interactions and from which to view the emerging paradigm of a whole earth, suspended and constantly travelling in space. I have extended this perspective to the study of the body/mind continuum itself.

These other works have been particularly valuable. Jonathan Spence, in To Change China: Western Advisors in China 1620-1960 has provided a fascinating glimpse of how western science, medicine and religion have worked together to promote, and in some cases inflict, a western paradigm

on other cultures. Using Spence as a springboard I have pointed out the evangelical and intolerant undertones of our conventional reductionist scientific method, especially as it has dominated disciplines other than physics.

Harris L. Coulter's Divided Legacy: A History of the Schism in Medical Thought, Volume III, Science and Ethics in American Medicine: 1800-1914 provides an invaluable study of the forgotten and suppressed history of medicine in 19th century America. Harris's work shows what happens when one approach to medicine, under the guise of rationality, destroys the institutional base of other approaches and takes effective control of the entire medical marketplace on "specious scientific grounds."[8] Coulter's meticulous research is somewhat marred by too great an emphasis on the allopathic versus homeopathic controversy, and fails to explore in greater depth other popular systems of medicine. However, his work clearly shows the effects of the application of the rational model on one field, medicine. Coulter's exploration of the cultural, social, political, economic and philosophical implications of the story of medicine n nineteenth century America delineates the obstacles underlying the emergence of a concept of the body/mind continuum in the rational west, especially in the important fields of science and medicine. Richard Grossinger's Planet Medicine: From Stone Age Shamanism to Post Industrial Healing enumerates indigenous healing systems which still provide traditional medical care to much of the world's population. Grossinger explores the ability of these systems to care for the whole peson, and thus implies their recognition of the existence of the body/mind continuum.

In Japan as Number One: Lessons for America, Ezra F. Vogel elucidates how Japan has simultaneously developed into the world's most competitive industrial power, and at the same time solved some of the internal problems that the United States now faces. My paper goes behind Vogel's work and finds 'Japan's secret weapon:' the natural emergence of a modern paradigm. This perspective comes from a convergence of a classical mystical/martial culture with the paradigms of web-world, spaceship earth and modern science. The Japanese promote the mass experience of this world view through extensive use of psycho-physical exercises, pressure point therapy and meditation in the fields of business, government and education. Both William Ouchi in Theory Z: How American Business Can Meet the Japanese Challenge and Richard Pascale and Anthony Athos in The Art of Japanese Management imply but do not explore or illuminate the commercial impact of psycho-physical cultivation.

Connections by James Burke is a brilliant exploration of the pattern of interconnecting events, the accidents of time, circumstance, and place, that gave rise to the eight inventions that ushered in the technological age: the computer, the production line, telecommunications, the airplane, the atomic bomb, plastics, the guided rocket and television. Burke not only shows how the waterwheel evolved into the computer, he traces the cross cultural and cross scientific connections which link these inventions with one another as well as with the stream of history. Burke shows how the Muslim need to know when to pray in the direction of Mecca led to the development of both the alarm clock and the electro magnetic compass. Burke's work is brilliant for another reason -- it was originally a television

series produced by the BBC. Full of dynamic illustrations and examples, Burke pinpointed the connections through the artistry of television. The direct interconnection between these worlds of different sciences and cultures and our own energy world of computers and telecommunications is an important part of our rich cultural inheritance. As we shall see, both the computer and the television not only demonstrate the emerging paradigm, but are by their nature two of its mosts valuable advocates. As the mythic pictures we perceive both individually and collectively help us to create, bind and enrich a culture, so might the mythic pictures along the new electronic communication systems of our earth help us all to proceed through this difficult period of transition.

# CHAPTER II

# THE CULT OF RATIONALITY

World View of Conventional Physics

Religion and Rationality: Missionary Scientism

Psychology and the Reductionist Paradigm

Rational Psychiatry

Medicine and the Reductionist Paradigm

Education and the Rational Model

Physical Education and the Rational Model

The Yale Curriculum: A Case Study

Contrast: Japanese Lower Secondary School Curriculum

American Higher Education: A Provincial 19th Century View of the World

Yale and Missionary Scientism

Body, Mind and Rational Paradigm

# CHAPTER II

## THE CULT OF RATIONALITY

Our western view of the world, our own present cultural paradigm, is derived primarily from two powerful influences, science and religion. In the realms of science, the paradigms derived from physics have been especially influential. The world view of the physicists has deeply affected the perspective of other sciences, other disciplines, and indeed of the culture itself. Fritjof Capra, in Tao of Physics, stresses the pervasive influence of the primary theories and methods of physics on our entire intellectual and cultural fabric. Huston Smith, in Forgotten Truths,[1] delineates a peculiarly narrow approach to science endemic in western culture as "scientism." He finds this scientism, although predominant in our society, to lack the qualities of true scientific approach, method and principle. Instead, Smith finds scientism to be imbued with the same dogmatic qualities of intolerance, narrow mindedness, arrogant superiority, and smugness one finds in many religious cults. Thomas Kuhn, in The Structure of Scientific Revolutions, repeatedly demonstrates the leaps of intuition necessary for the discovery of new scientific principles. Kuhn carefully delineates how scientists then theorize or rationalize a logical progression in this process, as if this were the only possible explanation for how it could have happened. He shows that we forget the processes of insight and intuition and ignore our actual scientific history, the stories of the discoveries and their emerging paradigms, and present our intellectual history as if it were a rational process, a rational history for a history of rationality.

As this chapter unfolds, we will see how some of the basic

assumptions, cultural, intellectual and spiritual, that underlie our western sciences also underlie our western religions. Indeed our scientific and religious perspectives are inextricably intertwined. Of course this perspective goes against the grain of popular assumption. But things which are intertwined may struggle against as well as nourish one another. And branches from the same root may both struggle for light and air, and for primacy.

This chapter will delineate the contributions of some of the major scientists who have constructed the world view of conventional physics, such as Democritus and the Greek atomists, and much later Descartes and Newton. We will establish the basic paradigm and its most important elements and philosophical assumptions. Then we will show how this approach has been intertwined with western religion, and how they have influenced one another. We will proceed to specific applied examples of the effects of this cult of rationality in various fields, including examples from mainstream psychology, behaviorism, psychiatry, biology, medicine, education, physical education, college curriculum, higher education, knowledge of world affairs, and the rational view of the body itself. After contrasting our approach with that of the Japanese, we will show that how one views the body and mind is an integral part of the construction of an entire cultural complex.

World view of conventional physics.

First let us provide a brief sketch of the evolution of the world view of conventional physics, beginning with the ancient Greeks. Capra and others have provided good sketches of various schools of physics in the age of

classical Greek culture. However, one physicist and his school is of particular interest in our investigation.

Democritus founded the school known as the Greek atomists. For Democritus and the atomists, there were three basic principles: A) Matter - all matter in the universe can be reduced to its "basic building blocks," the atoms. B) Atoms - these atoms are purely passive; they are in essence intrinsically dead matter animated only by energy. C) Energy - Energy is fundamentally different from matter; energy is motion, a force external to matter. Matter is in essence dead, but can be put into motion by this external force. This force itself is rather mysterious -- and perhaps has a spiritual origin.

One can clearly see in Democritus and the atomists basic assumptions which form the underpinnings of most of conventional western scientific and religious thought. In effect, these three assumptions form the underpinnings of most of that paradigm. Democritus and the Greek atomists gave us a basic image of how the world works which has become an integral part of the entire body of conventional western thought. In particular, Democritus has given us an image of dualism -- dualism between spirit and matter, between mind and body, between science and religion -- which has not only permeated our intellectual traditions but also provided a basic western context, a basic perspective or paradigm with which to view the world. In addition, the constant search of Democritus for basic building blocks, for atoms, has given birth to a method for investigating this universe -- the method of reductionism. Reductionism is not only the incresingly focused search for those basic building blocks of matter, but also the belief that

everything can be explained in terms of these basic blocks.

From Democritus we embark on a lengthy historical journey. From Greek civilization to Hellenic times, with its extensive cross fertilization with Egypt, Persia, India and China, we proceed to the rise and fall of Rome. The spread of Christianity throughout the Roman empire gave way to barbarian invasion and western Europe's dark ages, with the exception of extensive learning, science and religion in Ireland. After the fall of Rome came the golden age of Byzantium, the flowering of the eastern orthodox patriarchy, with its advanced science, art and architecture. Byzantium became Constantinople which later faced the onslaught of the Viking "Rous" from the North and the gathering tide of Islam to the south. It became isolated and lost influence, finally falling to the advancing Turks, who had converted to Islam. By 900 A.D., Islam itself had become the great center of western culture -- of art, learning, mathematics, science, religion and mysticism. Its great universities and scientific and medical achievements were unrivaled in the world of its time, save perhaps in India, China or the Americas. And from Islam's renowned centers of science, medicine and learning in Moorish Spain, Damascus, Baghdad and Cairo, through contact from trade, invasion and the crusades, Europe was once again reintroduced to its own forgotten traditions of science that extended back to the Greeks. The Christian soil of Europe flowered under the fertilization of Islamic learning, and eventually gave us the Renaissance.

In Europe at this time were two other men whose influence on western thought continues today. In France, Rene Descartes sharply delineated that Democratian image of dualism into the Cartesian division. Descartes

formulated his philosophy on a fundamental division of nature into two realms: the realm of the mind ("res cogitans") and the realm of matter ("res extensa"). From this Cartesian division of two separate and independent realms, western scientists and philosophers began to view matter as inanimate, dead and separate from "themselves." Of course, something must animate this dead matter, which left a place for God. No doubt this pleased the religious leaders of the time, many of whom were also scientists, just as many scientists were very religious men. The major domain of western science became the investigation of matter, whereas the investigation of the animating energy or principle was the domain of the church. The dogmas of science began to control the investigation of matter, as the dogmas of religion controlled the investigation of the spiritual realms. Thus the western interpretations of science and religion grew out of the ground of rational dualism.

The Cartesian division posited a view of the material world as a multitude of different objects. This viewpoint led to the speculation that these objects, the universe itself, were part of some gigantic machine. Into this speculative dialogue stepped Isaac Newton. For Newton, the universe, this multitude of different objects, was indeed assembled into a huge machine. To explain much of the macrocosmic phenomena of physical mechanics, Newton rather elegantly, efficiently and beautifully constructed his Celestial Mechanics. Newton's mechanistic view of the universe as a gigantic clock became the foundation of conventional western physics. But Newton himself was a very religious man and his Celestial Mechanics had within it room for a religious approach -- God as machine-maker and His

will as animator of the machine. Thus the influence of Newton's view of the world extended beyond physics to touch most other aspects of western intellectual life.

From Newtonian physics we received a way to think, an implicit view of reality, a definite assumption about the nature of the universe and what it contains. The explicit advances in technology have reinforced this implicit concept of the nature of reality. The mechanistic Newtonian model dominated all western thought: the physical sciences, the natural sciences, the humanities, the social sciences, and education itself. These disciplines adopted what is popularly called the scientific method, the underlying philosophy and approach of the natural sciences. The method of Newtonian physics is the experimental method, based on objectification, hypothesis testing, operationalizations and control groups. (As Kuhn points out, basic hypotheses have often been defended as if they were absolute truth rather than theoretical supposition. What are no more than theories quickly took on the iron-clad qualities of divinely inspired laws. Getting a new and different theory accepted frequently involved a struggle reminiscent of the conflicts of faith between adherents of divergent interpretations of spiritual absolutes.)

An integral part of the thought processes behind this rational way of thinking, and its reductionist scientific method, is the mechanistic view of nature. The great cosmic machine has been viewed by scientists as being completely causal and determinate. Everything that happened had a distinct cause, which in turn gave rise to a definite effect. This rigorous determinism was based on the dualistic philosophy of Descartes, which led

to a fundamental division between the world and "I". Scientists believed the world could be described objectively, in simple terms, without ever mentioning the human observer. An 'objective' description by a detached human observer became the ideal of all the sciences. All other forms of data collection, as well as other approaches to scientific understanding, especially those based on direct experience and perception, were ignored, dismissed or labeled "unscientific."

Religion and rationality: missionary scientism.

In addition, there is another element, often undiscussed in our intellectual history. In America, we stress the conflict between science and religion. In our rather simplistic way we emphasize the split between the evangelical's literal interpretation of the Bible and the scientist's strict view of the universe. For us, the Scopes-monkey trial is seen as the epitome of the struggle between science and religion.

But is it? Here we need to look beyond our shores, and even beyond Christian Europe. In To Change China: Western Advisers in China 1620-1960, Jonathan Spence delineates the dreams of the Jesuit fathers Matteo Ricci and Adam Schall to convert all of China to Christianity by proving the superiority of western science.[2] Father Ricci began his work in China in the late 1500's, and achieved some major conversions of Chinese high officials in 1601. Adam Schall set sail for China in 1617. By 1644 he had achieved the highest rank in the Chinese imperial bureaucracy and was made director of the Bureau of Astronomy. In particular, he helped to construct cannons and other weapons for the emperor's armies. Before Jamestown was even settled in 1607, Jesuit priests were attempting to make religious

inroads in China, using science as their major weapon in promulgating Christianity.

The story of science, as well as other disciplines in the west, is intimately connected with the story of messianic evangelical Christianity. These western forms worked hand in hand, one serving and promoting the needs of the other. And the spiritual, emotional, moral and philosophical bias behind western science has often come from the 'mind-set' of missionary Christianity. Even if scientists considered themselves atheistic, they tended to push their perspective with a sort of messianic fervor. The blending of these two paradigms has resulted in a sort of 'messianic reductionism' in much of recent western science.

Likewise, the rational mind set has colored and even dominated the conventional interpretations of religion in the west. Underlying dualistic assumptions have lead to the development of a complementary rational religious model which hypothesises a "god" who is outside creation, a detached "god" who conceives and animates dead matter in a universal machine somehow separate from itself. Both Judaism and Christianity have developed their own strains of righteous dualism, with a need for labeling "right" viewpoints as coming from "god" and "wrong" viewponts as coming from "satan." The resulting intolerance and fanaticism has led not only to hair splitting reductionist infighting among similar spiritual groups but also to the outright suppression of competing spiritual interpretations. In much of historical Christianity we find references to more holistic spiritual interpretations which hold that everyone and all of creation are a part of God. To the gnostics, the desert hesyechasts and the nestorians Christ holds

open the possibility that we too can awaken to our true nature as the children of God. This view of Christianity is in essence similar to the classical and holistic interpretations of other great religions. As we shall see, were it not for the love of learning of the mystical Christian nestorians, the entire west, as well as Judaism, Christianity, and Islam, would possess no knowledge of the great learning, science and literature of the ancient Greeks.

Of course, this viewpoint is contrary to our popular notions of a struggle between science and religion. There is struggle, particularly over turf, influence and power, but there has been a great deal of cross-fertilization. As we shall see, the same sort of rational mind-set that has promulgated militant Christianity has also promulgated western science. Sometimes it has been one, sometimes the other (usually in a western country such as America) and sometimes both together, usually in a "heathen" land, as Spence points out in China. One can see the Scopes-monkey trial as merely a religious, legal and political struggle between two cults -- the cult of messianic evangelicism and the cult of messianic reductionism. However, one might more politely term this cult of messianic reductionism, in its own words, as the cult of rationality. The mechanistic western paradigm, supported by the twin pillars of science and religion, rests on the philosophical ground staked out by the cult of rationality.

Psychology and the reductionist paradigm.

For additional examples of the effect of the mind-set of the cult of rationality let us turn to the academic disciplines.[3] Mainstream psychology, in an attempt to be scientific and objective, has made certain assumptions

about what can be studied in man. In essence, any human phenomena must be a) observable - the phenomena must be perceived by one or more of the senses; b) measurable - the defined properties of the observed phenomena must be quantifiable; c) publicly verifiable - more than one observer must agree on its existence and characteristics. These three assumptions circumscribe human behavior and characterize the work of contemporary behaviorist psychology.

In the behaviorist model, hypotheses are formed and then tested in a rigorous, experimental way. The key is the formulation of the hypothesis. In general, an hypothesis is a statement about the relationship between variables. In particular, it is a prediction about the cause/effect relationship between an independent variable and a dependent variable. The first is the proposed cause which can be manipulated by the experiment, the second the proposed effect which is observed. For example, in the familiar stimulus-response model, deprivation of sleep (the cause) will lead to more aggressive behavior (the effect). The stimulus impinges on the organism's senses and elicits or causes the response, the perceptual, cognitive or motor effect. If the cause is absent, the effect will not occur. If the cause is present, the effect will follow directly in time. Because an individual occupies a given space, and because his behavior is observable and measurable, this cause/effect process takes place in time and space.

Time, space, cause and effect are the foundational concepts of Newtonian physics. Behaviorist psychology has modeled itself on the same foundations as Newtonian physics. Furthermore, these psychologists have expressed a rather distinct reductionism because they treat behavior as the

only objective aspect of the human tapestry. And in one experiment after another they continue the search for the cause behind every effect. The cause in one instance becomes the effect in another. "This dizzying process"[4] as psychologist Ronald S. Valle terms it goes on and on, leading to an examination of every possible postulate and variable in great detail, reducing, reducing, reducing in a search for the "basic building blocks" of human behavior, those "atoms," those infinitely tiny indestructible truths that will answer all of the "whys" of what we do and how we act.

In the stimulus-response model, the person is viewed as a passive entity, just as Newton saw matter as passive. However, Newton saw the force of gravity as deeply connected with the bodies it acted upon. The behaviorists see that force or stimulus as something separate from the person, a viewpoint similar to that of Democritus and the Greek atomists or to that of the dogmatists of rational Christianity. Thus, behaviorists study the effects of mind on matter by studying behavior (Descartes' "res extensa") and utilize the rationalist approach, the scientific method of Newtonian physics, for this task. Psychological phenomena are reduced to psychic "building blocks" and are then related to psychological stimuli which are assumed to be their causes. Living organisms are viewed as machines which react to external stimuli.

B.F. Skinner, in Science and Human Behavior, said that " 'mind,' 'consciousness,' 'ideas' are non-existent entities invented to provide spurious explanations."[5] This rather cleverly implied that the only serious explanation is based on the mechanistic view of the human organism. Behaviorists claim that theirs is the only scientific approach to psychology,

and identify their reductionist, mechanistic framework with science. From this viewpoint they approach one side of the Cartesian division, "res extensa". In effect, behaviorists ignore the realms of the spirit, the mind and the emotions, and limit psychology to the realm of matter or to a materialistic view of the mind and the emotions.

Rational psychiatry.

Freud tried to study "res cogitans" itself. In his desire to develop a scientific psychology, he in effect established a conceptual relationship between psycho-analysis and Newtonian physics. The ego, the id and the super ego are postulated as if they are basic psychological structures, existing in psychological time and space. Freud did not specifically claim that the ego, the id and the superego were fundamental and irreducible building blocks. However, the structures themselves can be seen as psychological objects, often in conflict, driven by forces of the mind modeled after Newtonian mechanics. In spite of Freud's pioneering work, his whole approach can be seen as coming from and colored by the perspective of the rational reductionist method. From such a point of view, what is inside a person can be determined at birth, and pathology can be reduced to well defined causes. The role of the psychoanalyst, as Freud stressed, is that of an objective observor, not influenced by the observed phenomenon and not influencing them. Freud's "objective" map of the human psyche owes much to the dominant rational paradigm of his times. Indeed, Freud himself was thoroughly trained in the mechanistic medical model of his age. His investigation of "res cogitans", in method, structure and expression, and the resulting therapeutic techniques, clearly shows a

rational approach into the realm of the rational mind.

Medicine and the reductionist paradigm.

The medical model comes directly from biology. Descartes himself proposed a rather mechanistic biology which saw a living organism as a machine constructed from separate parts. His proposition has continued to dominate the life sciences, especially contemporary biology. If an organism can be understood as a machine, then living organisms can be taken apart and put back together from the knowledge of their parts. We get molecular biologists trying to demonstrate their understanding of cell structure and function by synthesizing a cell.

This by now familiar model, in the case of biology, led to what is commonly known as the "medical model". In western medicine, the human body is seen as a machine which can be analyzed in terms of its parts. Disease is an enemy, an outside entity, which invades the body and attacks some specific part. The role of the doctor, like that of a general, is to intervene either physically or chemically, through surgery or drugs. The afflicted part of the body machine is treated, and different parts are treated by different specialists. Disease is reduced to a biological mechanism which is studied from the point of view of cellular and molecular biology. It is no longer viewed nor treated as a disturbance of the whole organism. The psychological, the social, and other aspects of the illness are left out. Medical education itself emphasizes the "cadaver approach". Here we find doctors basing a major part of the study of medicine on a reductionist investigation of dead matter, cadavers, rather than on the study of living human beings with their own complex internal systems of thought,

emotion and action. Rational medical education proceeds as if it were still spiritual anathema to study actual life, the realm of the universe of experience.

The overemphasis on this reductionist approach with its specialized disciplines gives only part of the story. In many cases, rational investigation has been unsuccessful. The multi-billion dollar industry looking for a mechanistic, reductionist, deterministic cure for cancer is but the most expensive example. In this search, as in the medical model, there is a heavy reliance on technology as the best and sometimes only way to improve health. Of course, any approach other than surgery or drugs, even if it works on a large number of patients, is put down as unscientific. Again, the reductionist, mechanistic Newtonian approach is equated with science, and the medical profession is constantly looking for more expensive technology and drugs to deal with our health problems.

Here we have a major problem with this rational approach of the medical model. Newtonian physics is fine -- as far as it goes. The rational medical model is also fine -- as far as it goes. There have been many miracles in modern medicine. Many diseases have been contained and prevented, and life saving treatments for traumatic injury have been developed. However, because it is successful in one narrow sphere does not make it successful in another. Yet the rational model is the foundation for most medical education in this country. Medical doctors, nurses, physical therapists, public health officials, osteopaths and chiropractors are all trained through this rational model. In a larger sense, the doctors, nurses and physical therapists are seen as cogs in the medical machine. Patients

and hospitals are seen in this way also. Not only is the approach of medicine based on this rational model, but also the training, the structure, the function and the practice of health education. Health itself is seen as just one cog in the machine of human nature.

Education and the rational model.

As is now apparent, education itself, in our country and the west, is based almost entirely on the rational model. John Dewey, in his time considered the major architect of American education, was the most influential proponent of the promotion of the rational scientific method as the basis for training the mind. In the natural sciences, the physical sciences, the social sciences, as well as in the humanities we see the influence of this aspect of Dewey's work, his mechanistic, reductionist, deterministic, objective Newtonian approach. Indeed, the very structure and organization of the entire academic world, from grades to courses to credits to degrees, from kindergarten to graduate school, comes from this model. (Yet, as we shall later see, there is much more to Dewey's work that has not been accepted and integrated into our education system, especially his call for psycho-physical education.)

Even on the elementary level, Montessori's games and toys can be seen as attempts at giving children some experience of the "basic building blocks" of the universe and of their own preferred education and evolution within it. Piaget's brilliant investigation into how children think and learn is again framed in terms of the rational Newtonian model. Like Freud, Piaget does not go so far as to enumerate the basic blocks. Piaget does not say what is the fundamental unit of information or what are the primitive learning

processes. He deals on a more sophisticated level with "assimilation", "accommodation" and "equilibration." Yet the image persists of Piaget, the objective observer, looking for, enumerating and measuring the results of this more refined and sophisticated investigation into the learning processes of children. Although his categories are more open-ended and active than just static building blocks, Piaget does employ the thrust and method of rational investigation. So even Piaget and Montessori, through their rational investigation of the learning process, propose that the minds of children be trained in but different, more colorful variations of the same process, the rational approach of the scientific method.

In recent years, an alternative approach has been expounded by such critics as Jonathan Kozol and John Holt. This dichotomy between the conventional and alternative in education is reminiscent of the long running philosophical debate in the west between determinism and free will. In effect, both Holt and Kozol proposed a less outwardly structured, less militaristic organization of the schools themselves. However, their view of the learning process is basically that of the rational approach, albeit a more free swinging version. Although the conventional and alternative approaches are portrayed as two separate and distinct things, they are not polar opposites. They co-exist within school systems, and even individual schools. Some students easily move back and forth between both types of programs. But neither Holt nor Kozol, nor any of the critics of alternative schooling, have really questioned the rational method as the basis for training the mind. They have, instead, called into account its excesses, particularly in terms of the militaristic organization of the schools and the

deterministic structures of the curriculum.

Physical education and the rational model.

In the structure and organization of the schools themselves there is a basic Cartesian division. Academics deals with "res cogitans", physical education deals with "res extensa." This concept of a split between mind and body is institutionalized in the structure of western education. Physical education becomes just "exercise," useful as a release of tension or as a more organized and active recess. For many students, physical education becomes no more than a safety valve. For others, the recognized athletes, it is a source of identity and material benefit. For some communities the performance of these elite athletes is a source of pride as well as a cause for celebration and an excuse for gathering and entertainment. But the approach to physical education, for either athletes or others, is quite understandably derived from the Newtonian model. Bodies are measured to a norm of height and weight. Strength and flexibility tests are measured on machines by objective observers, and then quantified and geared to a certain norm.

Through the Nautilus and other machines, individual muscles of the body are isolated and increased. We are inundated with measurements, times, records -- recorded, observable, quantifiable data. By these measurements we are placed in different groups. They determine our place and path in physical education from an early age. Teams are structured on the machine model. The computer like efficiency of the Dallas Cowboys is contrasted to the factory-like approach of the Pittsburg Steelers. This approach filters down to the little leagues and the schools. When one cog or

player gets hurt, get another. Games in physical education class, the activities courses, present the same model, highly structured, even militaristic, with drill instructors for coaches, and with everyone reduced to a different role. The sum of the roles is the structure of the machine.

Bob Anderson, author of Stretching, states that this militaristic approach to physical education began to dominate after World War II, for many of the drill instructors in the armed services became physical education instructors in civilian life. These drill instructors turned physical educators shaped the tone and approach to physical education we have seen in the last thirty-five years. Anderson states that:

> "They brought their ideas of physical education into the schools. They made it seem like punishment. Even though we may have been trying as hard as possible, they yelled when we didn't do something correctly. In school, there was absolutely no talk of attitude and the importance of a good attitude as related to the total development of the individual. As far as total development is concerned, physical education is probably a waste of time for most people who are not in athletics."[6]

There is the same apparent split between conventional and alternative physical education. At San Rafael High, in San Rafael, California, one can do either football or frisbee, basketball or yoga, track or t'ai chi. The old grafted on to the new, all done with the same mental approach. "You've been doing yoga, now let's measure how your flexibility has increased. You've been practicing a martial art. Can you break two boards with your right hand? How many can you break with your left?"

Our sports themselves evolve out of different cultural matrices and eventually become a metaphor for different experiences in our culture. Football is seen as a metaphor for life in the schools, factories and corporations of America. Baseball, the old pastime, described a different

America of farms and small towns. The big city style of basketball with its deception, flashy moves, verbal and physical intimidation, "take it to the hoop" attitude contrasts with the rural style of "put it up" from the perimeter.

Even with the recent fitness boom, physical education is primarily an afterthought, except for a select few, in American education. It is just exercise, an excuse to release tension, an extended recess, where one takes care of "res extensa" -- the body. It is performed within the educational framework, and the physical educational framework, of a dualistic reductionist, deterministic, mechanistic, objective, rational Newtonian model for training the body. The rest of the academic life is for training the mind. Yet as a result of the fitness boom, people are more aware of the body as well as the personal and cultural limitations of our experience with the body.

As it stands now, physical education and education itself in the rational American system lack a working concept of physical cultivation in harmony with mental, emotional and spiritual cultivation. Although lip service is sometimes given to similar ideals, the actuality is not significantly apparent. Physical education, health education, and counseling are all considered separate areas with perhaps some overlapping responsibilities. A look at our recent history confirms this contention. But as we look at other times and other cultures, distinctly different models begin to emerge. Within our own western culture, recent developments in physics have gone way beyond the Newtonian rational model, describing a richer, more extraordinary view of the universe. The cult of rationality,

though active now, has lost the exclusive rationale for its structures and propositions. Physics itself has discovered a whole new ball game.

The Yale curriculum: a case study.

There are some other very important underpinnings to the philosophy of the cult of rationality. One of the main problems with looking back into our own history, or the history of other cultures, is the pervasive influence of the theory of progress. One can get the impression from some historians and economists that true civilization on the earth began around 1500 A.D. in Europe, and has continued onward and upward ever since. The curriculum at Yale in the 1960's reflected this point of view. Yale is supposed to have one of the best history departments in the English speaking world. Yet when I attended Yale from 1963-1967, almost all of the history courses were either American history or modern European history.[7] There was no history of India, no history of Islam, no history of Africa nor of Latin America. These areas were touched on in one course in British Commonwealth history. There were a number of courses in these areas, but with that one exception, they were all in the political science, economics, or sociology departments. All these courses dealt with very recent times, the ten or twenty years prior to the date of the course. Students used to joke that these courses all had the same theme, 'exploiting the natives.' The context differed, depending on which type of exploitation, political, economic, or religious, was preferred, and where and how it was carried out. The history department did have a course in the history of China which was divided rather humourously by the students into two segments. From the viewpoint of some students, the first semester was the first 5,000 years of Chinese history, the second semester

the last 150 years. Second semester had three main divisions, bringing civilization to China, why civilization was thrown out of China, and our enemies the commies and how they ruined the chance for civilization in China. The history of Russia also had a similar organization and theme. Since the war in Vietnam was starting to heat up, we also received a one semester course in Southeast Asian history taught by one of the architects of our government's policies in Southeast Asia.[8] The one semester course in Japanese history was different in that it showed how we were succeeding in bringing civilization to a heathen culture. History at Yale in the 1960's seemed to me to be one of the most clever inventions of western science and religion and certainly one of the most powerful propaganda tools of the cult of rationality.

Contrast: Japanese lower secondary school curriculum.

In contrast, let us turn to the curriculum for Japanese lower secondary schools. Among the topics covered in lower secondary history are:[9] a) History of Japan; b) Development of modern Japan; c) History of China; d) History of India; e) Formation of Europe -- Greek culture and Roman culture, coupled with Christian culture, formed the basis of the European world in later years; f) European peoples overseas expansion; g) History of Islam; h) Contact between the Islamic and the European world, while referring to the natural features and advancement of the Islamic world.

Is it possible that a history major at Yale, with a curriculum wedded to the narrow specialization endemic to the rational approach, knows much less about the world, its culture and its interconnections, than does a Japanese lower secondary school student? Absurd as it may seem to us, and as

difficult as it might be to "measure", perhaps it is so. In Japan as Number One, Ezra Vogel quotes Crocker Snow, former Boston Globe correspondent in Tokyo, who reports American reporters envy of the Japanese reading public's high level of sophistication. Snow states that "a Japanese reporter can assume that the typical reader of the three major dailies (with a combined circulation of 16 million) is better informed about international affairs than the reader of America's east coast elite dailies."[10]

Richard Halloran, former Tokyo correspondent of the New York Times, acknowledges that these large dailies "are able to carry detailed information about international developments that compares with America's elite papers. They have more analysis of their own government's planning and policy options than even the Washington Post carries about the American government. Yet these newspapers are highly competitive commercial operations, and they include thorough coverage because the general public has sufficient knowledge and interest."[11] Halloran continues: "News commentators on Japanese national commercial television can assume that the audience has sufficient scientific understanding to use various chemical formulas when discussing pollution, nuclear plants, or other scientific questions."[12]

Furthermore, let us examine the objectives for the study of geography in Japanese lower secondary schools:

> "(i) Through studies for various regions of Japan and the world, to have the pupils seek foundations for geographical views and considerations, take cognizance of our country from a broad viewpoint and understand the importance of making advanced and rational use of the land, thereby cultivating an attitude of endeavoring to develop the country.

"(ii) To have them realize that there are both regional peculiarities and common features in every geographical phenomenon, consider the geographical conditions accountable for them, and establish foundations for proper understanding of each region and the peoples' lives.

"(iii) To have them understand that there are various types of regional groupings, large and small, in Japan and the world, which are mutually interdependent, and think about the role of Japan in international society, thereby deepening their realization as a member of the nation and the world.

"(iv) To have them understand that the relations of human beings with nature and social conditions have been undergoing ceaseless changes due to human activities and that each region has also been transforming correspondingly. And, to have them understand the importance of the proper development and preservation of nature.

With the constant emphasis on understanding, awareness, and balance we find in both the history and the geography curriculum, it is not surprising to find in the 1970 international science test given to ten year olds in nineteen countries, the Japanese, though fourth in information, were first overall, and first in understanding, in application, and in higher mental processes.[14] Furthermore, lest we assume that music and artistic skills must be neglected, let us look at the comments of William Cummings. Cummings, who has done the most thorough cross-cultural study of Japanese and American elementary education, states: "By the sixth grade, most students are able to switch readily between at least three different instruments. The first time I saw this level of achievement, I could not believe my eyes. But after the fifth primary school, I had to recognize that it was widespread. While the members of orchestras and bands in American primary schools achieve this level, most of the remaining students are musically illiterate. Comparisons in art are nearly as dramatic."[15]

Although the Japanese approach has its own weaknesses, such

as "examination hell," in art, music, history, geography, science, mathematics, language, culture and world affairs the Japanese have compiled an enviable record. Yet in two other most important but overlooked areas, health education and physical education, the Japanese are also far ahead. Displaying a distinctly American prejudice, Ezra Vogel says: "It is commonly understood that those Japanese who attend elementary and junior high school in comfortable American suburbs will be a year or two behind their grade level in mathematics and the natural sciences when they return to Japan. The same is true even for the physical education skills stressed in Japanese schools[16] . . . The school thus prepares the student for the work organization and the community, for they also rely less on regulation than on inner discipline and sensitivity to others."[17] As we shall see, not only are health and physical education important, they may provide us with the crucial key of inner discipline, sensitivity, understanding and experience for beginning action in our own educational system.

Thus we find the Japanese secondary schools presenting an extremely sophisticated view of the world. When we look behind the rigorous Japanese curriculum, we find the world viewed in a way remarkably similar to the view that can be seen through the lens of modern physics. We forget that Japan has an ancient classical cultural heritage with a spiritual tradition that emphasizes direct experience of ourselves and the universe as whole. As we shall see in succeeding chapters, the paradigms of the classical cultures mesh easily with the paradigms coming both from the new physics and from our electronic web world of computers, television and telecommunications. The Japanese, lacking a dualistic, iron-clad seemingly

god given rational dogma, have created educational and business systems which inherently grow out of the deep and rich soil of the holistic paradigms of the classical world, the electronic web-world, and the universe of the new physics.

American higher education: a provincial 19th century view of the world.

Do we then face a crisis in competence in American higher education? "Education and the World View," the first nationwide study of how well American college students understand world issues, confirms this observation. Conducted by the Council on Learning, a non-profit organization that studies higher education, and the Educational Testing Service of Princeton, New Jersey, the nation's largest producer of college entrance exams, the study concludes that 85-90% of America's college students have an inadequate knowledge of the modern world. The study included 3000 randomly selected students at 185 public and private colleges and universities, ranging from Yale University to Appalachian Bible College. According to the study, 85 percent of the schools lack programs in international affairs that are appropriate to modern times. Most student said more discussions on foreign affairs were held in their high schools than in their colleges. The task force recommended that our schools make a "full-scale effort" to incorporate international issues into their existing courses. This would require "better teacher preparation, considerable reviews and revisions of textbooks."[18] The most ringing statement came from George Bonham, chairman of the task force that conducted the study. Bonham concluded that most American institutions of higher learning operate in "a provincial rut" and still cling to "a 19th century view of the

world."[19]

In addition, the President's Commission on Foreign Language and International Studies, in a report issued in November of 1979, stated: "American's scandalous incompetence in foreign languages also explains our dangerously inadequate understanding of world affairs."[20] Fred Heshinger, education writer for the New York Times, states that:

> "Part of the reason, in the view of many experts, is a growing public awareness that the United States can no longer view the world as its oyster. The shock of serious miscalculations, such as in Vietnam and Iran, and the continuing crisis in the Middle East, have alerted many Americans to the need to know more about people in other nations. . . . The loss of what used to be considered a natural and permanent superiority in such manufacturing fields as automobiles, steel and television sets has driven home the fact that American merchants as well as diplomats must compete where, in the past, they could virtually dictate."[21]

Heshinger proceeds to give several examples: Only one foreign service officer in the American embassy in Kenya is required to speak Swahili. Nobody in the American Embassy in India speaks Hindi. When a Russian soldier sought asylum in the American Embassy in Kabul, Afghanistan, he could find no one who spoke Russian. One underlying problem that seems to be resurfacing in our culture can be summed up in the following story. Back in the 1920's, when the Texas legislature was debating bi-lingual education for Texas schools, the powerful speaker of the Texas House dismissed the entire argument and scuttled the bill by proclaiming: "If English was good enough for Jesus, it's good enough for us."[22] Such strands of intolerance, bigotry, arrogance, assumed superiority and cultural myopia are woven through our quite brief history.

Yale and missionary scientism.

Yale of course is no exception to these patterns. Spence carefully delineates this perspective when he goes into the history of the first western medical college in China, the Yale-in-China Medical College. Founded in 1906 by Yale College graduate Dr. Edward Hume, this medical college was sponsored and funded by the Yale Foreign Missionary Society. The Society aimed "to furnish a center of Christian education in the interior of the Chinese Empire and to use all the various means available to that end .... (it aims) to consecrate some part of that energy known as the Yale spirit to the service of God and the good of their fellow men in the Far East."[23] Dr. Edward Hume went so far as to say: "Get hold of the students, of the educated men -- and China will be won. Won to the Western ways and the Western religion that would make the Chinese true citizens of the world. Won, not just to technical skill, but to that higher knowledge also, that moral incentive and groundwork of character that comes with the Christian faith."[24] Of course, particular attention would be given to the English language, "the chief medium of modern education."[25] Hume also felt that "medical work .... is in general the surest and strongest way of introducing missionary operations in any part of China. It would be a great mistake for medical work to be done on any but the most scientific lines. For us that means the standards of Johns Hopkins (where Hume had received his M.D. degree). Our medical and educational work must be carried on under the strongest Christian influence and under the highest intellectual and scientific standards of teaching and research."[26]

In Hume's words we can clearly see the intertwining of evangelical

Christianity and evangelical scientism. Huston Smith's scientism is a broader, softer term for a religion that at its core is dominated by the cult of rationality with its dualistic view of god, man and the universe, and continually influenced by the evangelical reductionism of some of its leading adherents, such as Skinner. Regrettably, most of American higher education is dominated and even decimated by the provincial rutting of this backwards 19th century view of the world.

Body, mind and rational paradigm.

Our cult of rationality, our combined religious and scientific traditions, have no concept of a mind/body continuum. There is the mind and there is the body: two separate things. Both mind and body are studied from the point of view of the pseudo-scientific rational method. Any information or experience that does not fit the narrow realm of quantification and reductionist verification is dismissed as 'unscientific.' Such prejudice closes the doors to a vast, rich realm of human experience, history and culture. The myopic search for 'basic building blocks' has led to scientific tunnel vision. The human body is considered an object which, although containing many fascinating processes such as respiration, digestion, reproduction, elimination, circulation, chemical reactions, and synapses, is still viewed as a mechanism, a human machine, whose spiritual, mental and emotional complexities are ignored or dismissed. Anatomy, physiology and subjective experience itself are all studied and presented from this perspective. Most emphasis still is placed on the reductionist approach to chemistry, bio chemistry, and micro-biology, an approach designed to discover those basic building blocks of matter which determine

our bodies. Studies from this perspective still dominate the field, even though, as we shall see, modern electronic microscopes have already taken us beyond, and modern physics has by implication "discovered" a whole new body, a truly whole body/mind continuum. Indeed the cult of rationality has shown us not the body and the mind, but a rational model of the body and the mind, in other words, the rational mind and the rational body.

The wedding of the theory of progress and the notion of western superiority, driven by the fire of evangelical reductionism and messianic dualism, has led to this cult of rationality and its so-called scientific method. Because we are better off materially now than we were previously, we do not take the time to examine our own history (including the story of physical cultivation and education), much less the history of other cultures. Or if we do, this examination is done with the assumption that our present day culture is far superior to what went on in our past, or in the past or present of other cultures. The proof is in the machine, the technological marvels which surround and pervade our world. Technology "per se" is proof of the superiority of the "rational" western way of science and religion. Since it so visibly and materially works for us it has become the way, no other way is "scientific." Throughout the entire western world we have developed a self-perpetuating cult of rationality, whose dualistic underpinnings are the Newtonian model of a mechanistic universe.

Western parochial smugness has led to a lack of awareness of the world around us, of diverse cultures, their ways of thinking, their past glories and disasters, their religions and their sciences. Western provencial, nineteenth century attitudes can be summed up in this story of the noted

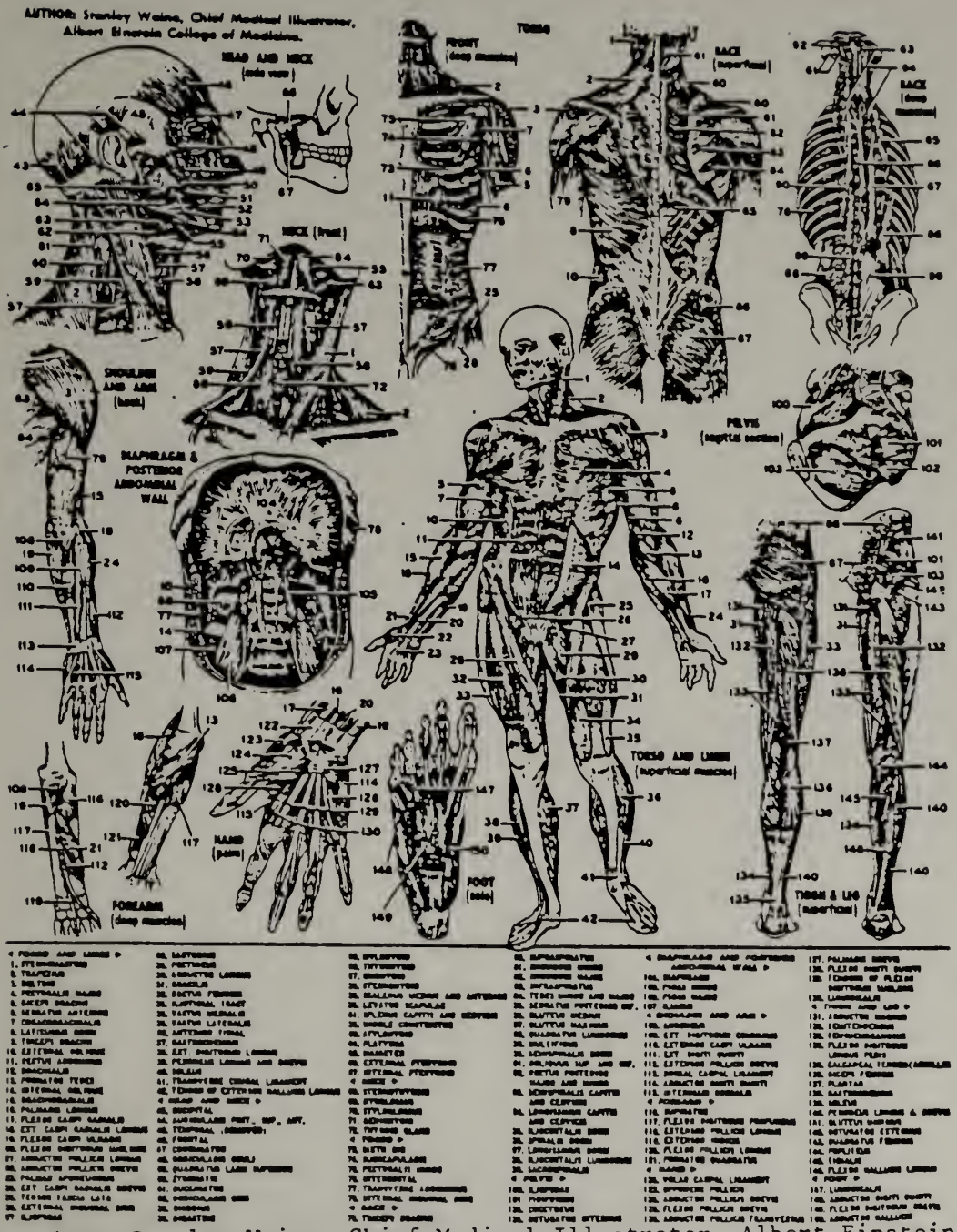
British historian Macaulay, who spoke in parliament in favor of a ban on the teaching of Sanskrit, Persian and Arabic in Indian schools. Ignoring some of the oldest and richest literary traditions in the world, Macaulay claimed that "in Hinduism all is hideous and grotesque and ignoble"[27] and that "all the books written in the Sanskrit language are less valuable than the paltry abridgements used at prep schools in England."[28] At the same time, official required reading for any Britons serving in India was James Mill's History of India. Mill neither read nor spoke any Indian language nor ever set foot in India; his book is an undisguised indictment of the "inferior" people and culture of India. With such a rational approach to "history," it is no wonder that average Japanese lower secondary school students appear to have a greater degree of cultural, historical, and even scientific awareness than college students at a great western university. Thus the theory of progress and the rational method have combined to exclude us from much of the world, its culture, its history, its interconnections and its scientific and spiritual disciplines. What price are we paying for such ignorance and intolerance?

Ironically, some of those machines which are the epitome of western technological superiority, such as the computer and the vast telecommunications systems, by their very nature, give us a vaster, richer view of mankind and the world than that offered us through the blinders of rationality. Science itself, especially through the newer works in physics, has also glimpsed a much vaster, richer universe. No longer do the prejudices which are accepted as "scientific fact" by the cult of rationality, with its dualistic gods, its mechanistic theology, and its reductionist dogma,

dominate the field of science. No longer can westerners posit just a rational universe, a large machine, with its complementary dualistic idolotry which hypothesizes "god" as a cosmic golden calf, a cosmic absentee landlord.

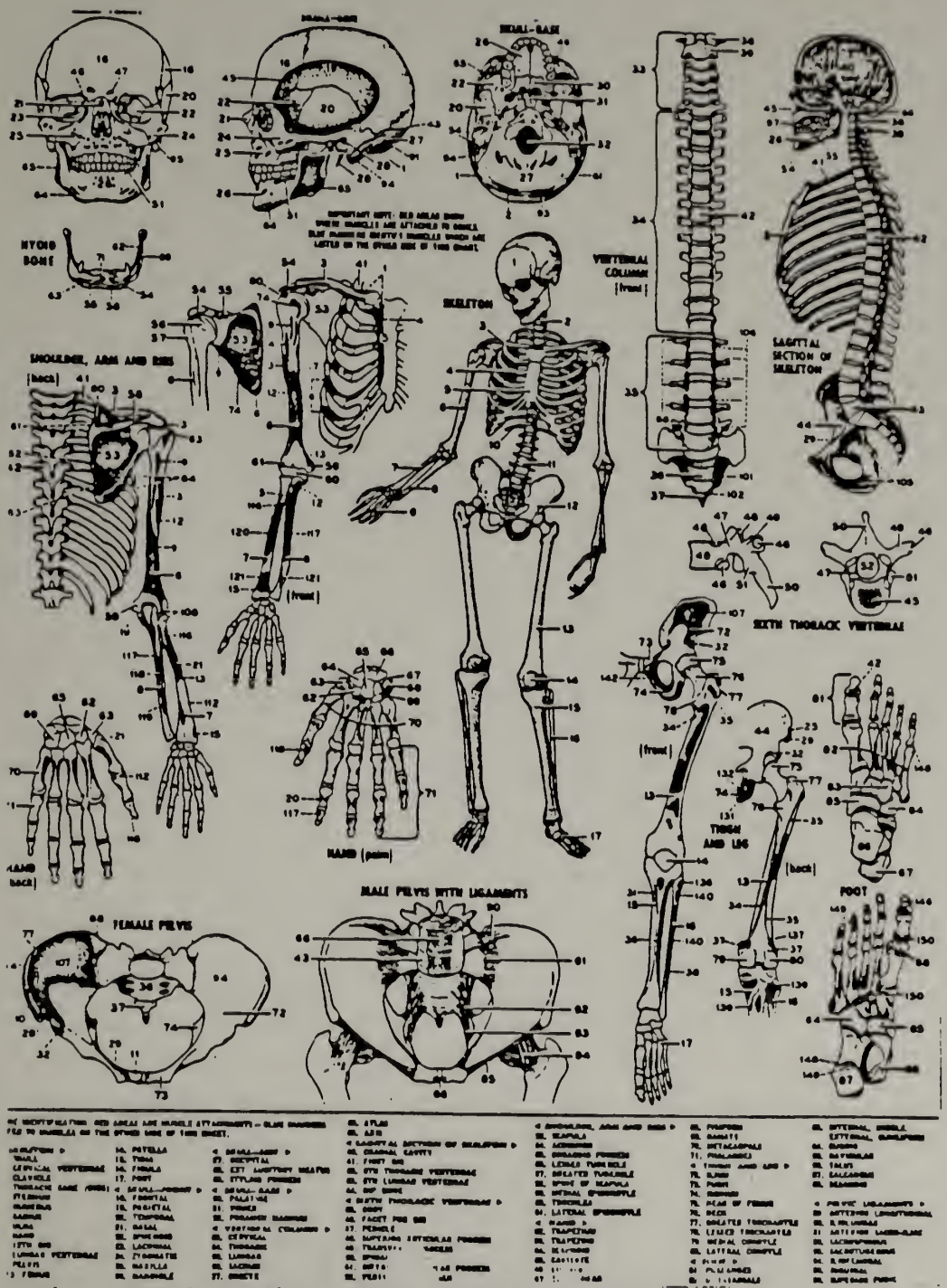
The cult of rationality has really mistaken one map among many maps for the whole territory and insisted that the rational map is not only the only map but also the territory itself. Not only are there many other maps, but mapping itself is arbitary. A large highway sign saying New York City is not New York City. If you stop under that sign and proclaim yourself to be in the heaven of New York, not only will you miss New York, but you'll make a fool of yourself. The cult of rationality has made a fool of itself, and irrationally and fanatically insisted that we maintain a foolish view of ourselves and our universe. Ironically, the recent findings of modern physics not only undermine the cult of rationality, but also shatter the limited interpretations of science and religion on which rests the western paradigm.

# THE RATIONAL BODY




Author: Stanley Waine, Chief Medical Illustrator, Albert Einstein College of Medicine.

Fig. 1. Muscles: the rational view.




Author: Stanley Waine, Chief Medical Illustrator,
Albert Einstein College of Medicine.

Fig. 2. Bones: the rational view.

# CHAPTER III

## THE NEW PHYSICS AND THE OLD WAY

Quantum Theory and Probability

Theory of Relativity

The Bootstrap Model

Implications of the New Paradigm for Other Fields

Psychology: Paradigmatic Applictions

Implications for Economics

Implications for the Human Body

Implications for Education and Physical Education

# CHAPTER III

## THE NEW PHYSICS AND THE OLD WAY

One of the major challenges to the dominant paradigm constructed by the "cult of rationality" is found in the field of modern physics. In the last chapter we have seen how, for the last three hundred years, conventional physics has envisioned the world as a huge machine and the universe as a mechanical system composed of elementary building blocks. Other sciences accepted this model as the only scientifically correct description of reality and its method as the only scientifically correct method for arriving at an acceptable description. It is not as if Newtonian physics was applied "per se" to other phenomena. What was applied was a mechanistic, reductionist view of the world (based on the Newtonian model) with its concommitant dualistic assumptions about human nature. As we have seen, this model was touted as the only scientifically defensible point of view, and the rational method became the only defensible way to examine subjects as diverse as economics, psychology, medicine, the human body, the human mind, biology, and the universe itself. Our academic and economic system continues to be dominated by the specialized, rational mind, its accompanying theory of progress and its provincial 19th century view of the world.

Recent developments in physics ironically demonstrate the severe limitations of this conventional western view of the world and of human nature. Einstein's special theory of relativity, Planck's contribution to quantum theory, Heisenberg's uncertainty principle, the dual wave-particle nature of light and other developments have taken us through several conceptual revolutions in the world of physics. Heisenberg, and many others

have discarded the Newtonian physics and left it behind as too narrow in scope, too limited in conception. The Newtonian model failed to explain or embrace the findings that come from the high energy particle physicists, who explore the sub-atomic world. It is not that Newtonian physics is wrong "per se",and the new models right, but rather that Newtonian physics accurately describes the interactions in a certain range of phenomena -- the macroscopic phenomena of physical mechanisms. Beyond this range it is no longer accurate, or even satisfactory. New theories have arisen to account for this expanded range of phenomena. But it is important to note that they do not replace Newtonian theory. They extend it by improving the approximation and by providing an expanded conception of the universe with different maps or models relatively accurate at different levels or from different points of view. They generally require a larger frame of reference, and frequently new ways of testing, evaluating, using and understanding phenomena. These new theories will have great impact on all the other sciences and on education, for they expand our view of the universe and of ourselves.

Quantum theory and probability.

Let us look first at probability theory, then at quantum theory, the current theoretical foundation of atomic physics. Probability is a fundamental feature of atomic reality, a reality which governs all processes, even the existence of matter. The subatomic particles of which matter is composed do not exist. Instead, subatomic particles show "tendencies to exist." Those solid material objects, those basic building blocks of Newtonian physics, dissolve at the atomic level into patterns of

probabilities.

Furthermore, these subatomic particles are meaningless as isolated entities. Through analyzing the process of experimental observation, these subatomic particles can be understood only as interconnections between the preparation and the measurement of an experiment. They are not "things," not basic building blocks, but interconnections between things. The patterns of probability do not represent probabilities of things, but probabilities of interconnections. Thus we do not find any isolated basic building blocks as we penetrate into nature and matter. Rather, as Capra puts it, nature "appears as a complicated web of relations between the various parts of a unified whole."[1] According to quantum theory, we cannot decompose the world into independently existing fundamental units. Instead, quantum theory reveals a basic oneness of the universe.

In the experiments themselves, the observed "objects" can be understood only in terms of the interaction between various processes of observation and measurement. As the processes are constructed by the perceiver, they are, of course, arbitrary. The processes include the consciousness of the human observer in a crucial way. Not only is the human observer necessary to observe atomic phenomena, but also he or she is necessary to bring about the properties of these phenomena. Interestingly enough, the observer's decision about how to observe the properties of an electron will, to some extent, determine those properties. In a rather fascinating way, the electron has no objective properties independent of the observer's mind. Therefore this cosmic web of relations includes the human observer and his or her consciousness in an essential way. The Cartesian

split between mind and matter, between "I" and the world, does not apply in atomic physics. As Capra put it: "We can never speak about nature without, at the same time, speaking of ourselves."[2]

Theory of relativity.

Einstein's theory of relativity has brought about an equally deep change in our view of the nature of reality. According to the theory of relativity, space is no longer three dimensional, and time is not a separate entity. Our concepts of space and time have been dramatically altered and interconnected to form a dimensional continuum -- space-time. Time and space are so inseparably interconnected that whenever we mention space we are also talking about time, and vice versa.

The concept of a space-time continuum has radically altered the whole framework we use to describe nature. Mass is now seen as nothing but a form of energy. Even when an object is at rest, it has energy stored in its mass. The equivalence of mass and energy is the most important consequence of this altered framework. Our entire view of matter, our concept of a particle, and our view of the nature of reality has been profoundly modified by these two developments of relativity theory -- the unification of space and time and the equivalence of mass and energy.

Subatomic particles are now seen as dynamic patterns with a space aspect and a time aspect. No longer is mass associated with a material substance. Particles are viewed as bundles of energy, and not as being built up of some basic stuff. The intrinsic nature of these subatomic particles is dynamic because they are bundles of energy, and energy means activity, processes. No longer can these particles be seen as static, three

dimensional objects like grains of sand. They are pictured in a new framework -- four dimensional activity in space-time. Their space aspect gives them the appearance of having mass. Their time aspect gives them the appearance of a process involving equivalent energy. Matter and its activity are but different aspects of the same space-time reality. Through relativity theory, then, we understand that what constitutes matter has an intrinsically dynamic aspect.

In summary, at the atomic level, the macroscopic view of substance no longer makes sense. The atomic particles themselves are not made of any material substance. Rather they are bundles of energy, dynamic patterns constantly changing into one another, manifest as a continuous dance of energy.

As Capra pointed out:

> "Two separate developments -- that of relativity theory and of atomic physics -- shattered all the principle concepts of the Newtonian world view: the notion of absolute space and time, the elementary solid particles, the strictly causal nature of physical phenomena, and the ideal of an objective description of nature. None of these concepts could be extended to the new domains into which physics was now penetrating."[3]

No longer is the universe seen as a machine made up of a multitude of separate objects. Instead, the universe is seen as harmonious, indivisible, whole - a network of dynamic relationships that includes the human observer and his or her consciousness in an essential way.

Bootstrap model.

Twentieth century physics thus shows us a view of the world, of the universe, of nature and of human nature itself, that is organic, ecological and holistic. Nowhere is this more apparent than in the attempts to unify

quantum theory and relativity theory into a unified theory of the subatomic world. There is no complete theory yet which describes all the aspects of subatomic phenomena. There are partial theories, though, and overlapping models which explain some aspects. But the process of one overlapping model, the "bootstrap model," is rich in implication for the future of scientific thought. As we have seen, traditional research in physics has always been bent on finding the fundamental building blocks of matter. The bootstrap model implies that nature cannot be reduced to such fundamental entities. Not only does it accept no fundamental building blocks, it accepts no fundamental entities, laws or equations at all. Since the universe is seen as a dynamic web of interrelated events, none of its properties are fundamental. No one part of the web is the fundamental part. Rather, each part of the web follows from another part. The structure of the entire web is determined by the consistency of the mutual interrelationships. Capra calls this model "the culmination of the conception of subatomic matter as an interconnected network of relations."[4]

In actual scientific practice, the bootstrap model is applied in a limited and approximate manner. It is used to describe only hadrons, a certain kind of strongly interacting subatomic particle. Interaction through strong nuclear force is appropriate for particles like protons or neutrons. The framework for the hadron bootstrap model is the S-matrix theory. This theory accepts only a few very general principles required by the methods of observation. It attempts to describe all the properties of hadrons and their interactions from one requirement -- self-consistency. However, the phenomena of hadrons are extraordinarily complex. Perhaps no complete,

self-consistent mathematical theory can be found. What we have is a series of smaller models, each partially successful, each covering only a part of the observed phenomena. Each has unexplained aspects, or parameters, and the parameters of one model can be explained by the parameters of another. These interlocking models then describe more and more of the phenomena. No one individual model is more fundamental than the others. The bootstrap model is a mosaic of mutually consistent interlocking models. As Geoffrey Chew, who has developed this bootstrap model, phrases it: "a physicist who is able to view any number of different partially successful models without favoritism is automatically a bootstrapper."[5]

From these models we begin to see a picture of hadrons which Chew describes in his provocative phrase: "Every particle consists of all other particles."[6] But the viewpoint of this phrase is quite different from that of conventional, Newtonian physics for as we shall see, it has a holographic aspect. Hadrons are not separate entities. One hadron does not contain all the others in a Newtonian sense. Hadrons are interrelated, interconnected patterns of energy acting in an ongoing dynamic process. So the patterns do not contain one another. Instead they "involve" one another. Although this involvement can be expressed mathematically, it is difficult to express it in words. Capra has summed up one possibility:

> "The bootstrap idea of an interconnected web of relations, in which particles are dynamically composed of one another, represents the culmination of a view of nature that arose in quantum theory with the realization of an essential interconnectedness, and was further shaped by relativity theory when it was recognized that the cosmic web is intrinsically dynamic, that its activity is the very essence of its being. The wider bootstrap philosophy, which accepts no fundamental entities but sees all structures and regularities as necessary

consequences of the self-consistent cosmic web, may well be the culmination of modern natural philosophy."[7]

Implications of the new paradigm for other fields.

Twentieth century physics shows other sciences that sound scientific thinking need not be mechanistic and reductionist. Organic, ecological, holistic views of the universe are also scientifically sound. Scientists, economists, educators and others can transcend the conventional models and develop holistic models and theories. For modern physicists have learned that all the deeply cherished and concretely held theories and concepts we use to describe nature are limited. With this expanded experience of the nature of reality we have modified or dropped many of the old concepts. Although the process has been painful, it has been rewarding. For now we have deeper, richer insights into the nature of reality, of matter and the human mind itself. Scientists from other fields, educators, economists, and others may soon undergo such a process. The bootstrap theory with its mosaic of interlocking, mutually consistent models, along with the lessons learned from quantum theory and relativity theory, may be a sound basis for this approach.

Psychology: paradigmatic applications.

Before examining some of the uses and implications of the new physics for other fields, let us first look at another discovery of modern physics -- the dual nature of light. According to modern physics, light may appear with the properties of a particle or of a wave. But which is it? As is common knowledge in physics, light can be seen as a particle or a wave, depending entirely on the approach and method of the observer. The observer is not

only an integral part of the experiment, his or her consciousness and approach determines the outcome of that experiment. The observer and the observed are both part of the whole. They co-constitute each other.

In the fields of philosophy and psychology, the controversy between free will and determinism seems much like this apparently unresolvable dichotomy of the wave and particle nature of light. Free will and determinism are seen as polar opposites. But if we see that human nature, like light, has both a wave and a particle aspect, then we may arrive at a much different solution to this debate. The determinists ignored the wave nature of human existence, narrowing their viewpoint through their experimental method which allowed them to see only the "particle" side, the "object" side of human existence revealed by the objective, reductive, experimental method of the behaviorists. For them, the observer is separate, neutral and does not interact with the behavior being observed. But there is obviously more to human nature than this deterministic "particle" side. There is also what we find in our emotions, our thought and our intuitive faculties, and the sense of choice, the free will we feel with them. This "wave" nature has been ignored by the determinists, and has even proved inaccessible to their methods and approach. So baffled are they that they dismiss it with the rational perjorative, "unscientific". Their experiments allowed them to see only the particle side. Likewise, free-will proponents frequently saw only the wave side, ignoring the particle side of human nature in their interpretations. Perhaps knowing more about the particle side leads to knowing less about the wave side. And knowing more about the wave side leaves us with no possibility of accurately measuring

the particle side. It seems that we have a philosophical, psychological version of the problem addressed by Heisenberg's uncertainty principle and verified repeatedly by experiment on the subatomic level. Human behavior and thought may not occur at definite times and places, but rather have "a tendency to occur." The wave side of human nature may show us that we have a "tendency to behave" rather than a completely determined behavior. As psychologist Ronald Valle solves this question:

> Human behavior can never be predicted with certainty because of its intrinsic wave nature. In fact, one can now see that the variance, the error that is evident in all experimental data is the ignored volitional side of the human subject. Our wave side is the reason there is a built-in variability that can never be accounted for in the purely particle approach of an objective social science as psychology is presently conceived. . . . The free will versus determinism issue thus becomes just one more illusory dichotomy.[8]

In discussing the impact of modern physics on psychology, Valle further states:

> There is an implicit, presumed belief that the accelerating conceptual change in physics will have an analagous and equally disruptive parallel in psychology. More specifically, psychologists will experience a dramatic change in their world-view including drastic alterations in concepts like the strictly causal nature of behavioral (and experimental) phenomena, the notion of person as "object" to be reduced in order to be understood, and the ideal of an objective description of human nature. As the "New Age" progresses, watching behaviorist psychology slowly evolve into a relativistic quantum psychology will be as Star Trek's Mr. Spock so often said, "Fascinating".[9]

Implications for economics.

Like Norwegian economist and scientist Bryne Beorse, Capra makes some telling comments about economics.[10] Economists, like most social scientists, see their discipline as fragmentary and reductionist. Social scientists generally divide the whole social fabric into fragments. They

assume these fragments to be independent and deal with them in separate academic departments - economics, political science, sociology. Unlike Beorse, they do not see economics as merely one aspect of the whole ecological and social fabric, so they neglect social and ecological interdependence. The concepts of conventional economics, "efficiency," "productivity," "profit" are not seen in their wider context. All goods are treated equally, without regard for their relation to the rest of the world. All values are thus reduced to private profit making. Corporate profits are the measuring rod for corporate efficiency. But since many of these profits are made at great public cost, for whom are they efficient? The highly mechanized, petroleum subsidized American way of farming, when measured in terms of how much energy is used for a given output of calories, is now the most inefficient in the world.[11] Yet it generates huge profits for agribusiness, which is largely owned by the petrochemical industry.

When confronted with inflation, economists are totally confused. In their conventional model, the free market stays in balance naturally. Inflation and unemployment are trade-offs, temporary interdependent aberrations of the market's state of equilibrium. The model is fine, but the reality today is quite different. Rarely do free markets exist, for our economics are dominated by huge institutions and interest groups. The trade-off idea has become invalid, since both inflation and unemployment are now part of the system, a structural feature of the economy itself. By neglecting social and ecological interdependence, economists have failed to realize two major causes of inflation: the neglect of the social and environmental costs generated by all economic activity, and excessive

dependence on energy and natural resources in a capital-intensive economy. The anti-ecological framework of economics fails to understand these causes because it disregards our dependence on the natural world. Through modern physics we see the natural world as an organic whole in which all parts are interdependent. Modern physics posits a dynamic system, self balancing and self adjusting, unlike our current economy and technology. Conventional views are dependent on the theories of progress, undifferentiated economic and technological growth, and continued expansion. But to what and where? An unlimited expansion on a finite earth? Such an attitude contrasts sharply not only with modern physics, but also with the value system implicit in it.

Implications for the human body.

The view of the body presented by modern physics, that apparently solid conglomeration of flesh and bone, is in reality a vast expanse of empty space containing a constantly changing dance of energy, movement without matter. As George Leonard puts it in The Silent Pulse, in the chapter "Flesh, Spirit and Emptiness:"

> "The subtle dance of the body joins us to the world. But what is this body? Of what is it made?. . . Is the body really solid as our customary perception tells us?. . . We can penetrate more deeply. The electron scanning microscope, as recorded by Emmont Nillson in Behold Man: A Photographic Journey of Discovery Inside the Body (Boston, 1974), with the power to magnify several thousand times, takes us down into a realm of the body that has the look of the sea about it. Now the pores of the skin open like ocean caves, and we have to be told that the submarine creatures clinging to the convoluted walls are nothing more than ordinary bacteria. . . There is something dreamlike about these images. . . The electron microscope allows us these perceptions of the body, a beautiful and terrible place, seemingly as spacious as the sea. Within this

> spaciousness, though, is still solidity; the flesh has not yet resolved itself into a dew."[12]

Leonard continues his explorations of what the body really is in a more poetic vein, yet from a point of view consistent with the implications of modern physics:

> "The moment comes now to penetrate even more deeply. To do so we must sacrifice sight for insight. No microscope using light or even electrons can take us where we want to go. Information gained in powerful atomic-particle accelerators will be our illumination, our microscope. The power of the rational mind will provide the magnification for our quest.
>
> As the magnification increases, the flesh does begin to dissolve. Muscle fiber now takes on a fully crystalline aspect. We can see that it is made of long spiral molecules in orderly array and all the molecules are swaying like wheat in the wind, connected with one another and held in place by invisible waves that pulse many trillions of times a second.
>
> What are the molecules made of? As we move closer, we see atoms, tiny shadowy balls dancing around their fixed locations in the molecules, sometimes changing position with their partners in perfect rhythm and now we focus on one of the atoms; its interior is lightly veiled by a cloud of electrons. We come closer, increasing the magnification. The shell dissolves and we go inside to find. . . NOTHING.
>
> Of what then is the body made? It is made of emptiness and rhythm. At the ultimate heart of the body, at the heart of the world, there is no solidity. Once again, there is only the dance.[13]

Here, then, we have a view of the body presented to us by modern physics. Of this view of the body, in spite of our extensive medical research, we are profoundly ignorant. We do not know its potentials or how to use them. We only know, from modern physics, that the body does exist in this way -- a body of profound empty space, full of constantly changing dance.

Implications for education and physical education.

The way we view the world changed radically with the introduction of Newtonian physics. This shift in paradigms affected our entire culture, and in particular our academic disciplines. Our education system was affected in structure, content and direction. With the rational method came the rational paradigm, with its perceived split between the body and mind, and its presentation of a "rational body" and a "rational mind." Physical education itself became a way to experience the rational body and the Newtonian paradigm.

Once again physics has shown us a new way of viewing our world and ourselves. In the paradigm of the new physics, both our world and ourselves are seen as an interconnected web of relations, intrinsically dynamic in nature, interdependent, with no fundamental entities and with its very relations dynamically composed of one another. This new paradigm shift will also effect our entire culture, especially our academic disciplines. It is vitally important for us to realize what has taken place in physics, what it means, and what we can do about it. We will need to expand our models and methods. The rest of this dissertation points us in a direction that allows us to explore potentially useful models from classical cultures, modern science and technology, and our existing electronic web world.

The cultural perspectives and interactions that emerge from this paradigm shift may be quite different from those we hold today. Our values will also be deeply affected. Our educational curriculum, in structure and content, will undoubtedly change. For instance, history may come to be viewed as a mosaic, a dynamic, interconnected web of relations between and

within various diverse cultural mosaics, whose parameters both overlap and cross fertilize each other. There are no fundamental cultures, for cultures are dynamically composed of one another. Each of our sciences and academic disciplines will likewise be affected. In the medical curriculum, we may move from cadaver education and the exploration of dead matter to energy exploration and the investigation of interconnected living systems which could evolve into a western form of energy medicine, based on an inclusive view of matter as energy, and ourselves as essentially whole. Perhaps one unacknowledged reason for the success of Japanese education is the implicit inclusion of this modern yet classical view of the world underlying their entire traditional curriculum.

As we shall see in succeeding chapters, how a culture views the human body, and plans for its education, is an essential feature of that culture's paradigm. With this viewpoint in mind, our approach to physical education can become a dynamic and conscious element in our search for a way to experience the view of ourselves, our world and our universe we find presented in the new physics. In turn, our culture's emerging view of the human body will strongly influence the structure, theory and practice of a number of our key sciences and disciplines, especially medicine, psychology, education and physical education. The Newtonian paradigm and its rational method greatly affected our cultural and scientific evolution. The new paradigm and its emerging methods will also greatly influence the course of our cultural and human evolution.

In our rational physical education we experience a mechanistic view of the body, seemingly separate from the mind. However, the new physics

shows us a body of profound empty space, full of constantly changing dance, in itself a dynamic web of interconnected, interdependent relations, with no separation of mind and body. This body/mind continuum, by implication, is itself not separate from the essential interconnectedness of nature.

How can we possibly experience this sort of realization within our own body/mind continuums, and at the same time make this approach the cornerstone of our attempt to educate ourselves and our children to realize the view of reality we find expressed in the new physics? The new physics has turned to such classical cultures as China, India, Japan, Burma, Tibet, and Greece, where it finds a view of the cosmos remarkably similar to its own. From these cultures, and particularly from their mystical and allegorical writings, have come the very expressions the new physics has used to convey this expanded view of reality.

We too can turn to the classical cultures for models to help us in our search for the most fruitful approach. Each of these cultures found a way to experience within its own body/mind continuum the reality of its particular view of the universe. These cultures have spend thousands of years exploring the realms of the body/mind continuum and have developed profound means for self education and physical cultivation. These classical cultures have conducted rigorous, extensive, well-documented research into these realms. Their maps, models, techniques, and experiences are partially open to us.

I once went on the Monsanto ride in Disneyland with a Tibetan Lama. The ride is the journey to the center of the atom, and took us down, further and further, until there was just one dot, one nucleus left. Suddenly a voice

blurted out over the loudspeaker: "But we dare go no further." As the Lama and I burst into laughter we were expelled past the "stopping point" to a series of Monsanto exhibits and advertisments. He turned to me and said: "Western science is really marvelous in so many ways. But it's also so strange. It stops where we begin."

Let us now turn to these classical cultures for a description of the next piece in our mosaic of the emerging paradigm.

# THE ENERGY BODY: A WESTERN VIEW


Fig. 3. Discover fantastic views of the body.


From U.S. News & World Report

Fig. 4. The energy body


Fig. 5. The energy body

# CHAPTER IV

# THE CLASSICAL APPROACH

## CHINA

Chinese Medicine and Yin/Yang

Historical Development of Acupuncture

Chinese Education: Confucius and Kung Fu

Chinese Education: Lao Tzu and the Tao

T'ai Chi

## GREECE AND THE ISLAMIC CONNECTION

The Lost Tradition

Architecture

Physics

Deductive Reasoning

Education

The Importance of the Gymnasium

Medicine and the Gymnasium

No Set Schools

Fascinating Fragments

The Medieval Connection

European Psycho-Physical Practices

The Islamic Connection

The Belly Ache that Saved the West

"The Great Work"

The Libraries of Moorish Spain: Lifeblood of European Thought

Europe Discovers Aristotle and Ptolemy

Graeco-Hellenistic-Christian-Arabic-Islamic
Medicine Becomes European Medicine

"The Rule of Health"

The Medical Theories of Hippocrates and Galen

Medical Astrology and the Theory of the Humours

The Foundation of Classical Medicine

The Unspoken Mystical Connection

Sufi Practices of Transformation

The Suppression of Christian Mysticism

INDIA

Spiritual Foundations

Yoga and Ayurvedic Medicine

Yogic Postures and Energy

Yogic Dance

Summary

JAPAN

The Warrior Motif

Zen and the Samurai Class

# CHAPTER IV

## THE CLASSICAL APPROACH

> We all feel that it is very reasonable and important to ask ourselves how we should try to conduct our lives. The answer is, in my opinion: satisfaction of the desires and needs of all, as far as this can be achieved, and achievement of harmony and beauty in the human relationships. This presupposes a good deal of conscious thought and of self-education. It is undeniable that the enlightened Greeks and the old oriental sages had achieved a higher level in this all important field than what is alive in our schools and universities."
>
> - Albert Einstein

In this chapter we will examine several traditional cultures with an eye towards understanding these basic elements: their world-views, their systems of education and medicine, the role of physical cultivation in their educational and cultural systems, and their views of the body and mind. In so doing, we will see what we can learn from their experience which may be helpful to us in finding a way through our present cultural, educational and physical dilemmas. It will be noted that the world view of many of these cultures seems to approximate the emerging world view of the new physics. Perhaps their models and their experience can help us to develop our own models, to throw light on our own experience, and, at the least, to help us through this period of transition.

## CHINA

Chinese medicine and Yin/Yang.

The Chinese express their 5000-year old tradition of thought and attitude which permeates their culture in one symbol -- the yin-yang. Yang -- the light, active, masculine, rational, scientific, competitive side - is not dominant over and contrasted with the "unscientific" yin -- the dark, passive, feminine, intuitive, artistic, co-operative side. Rather they are part of a whole, a dynamically active, ever-changing whole. When yang is at its most active, it has the seed of yin within it, and through its cyclical character periodically becomes its opposite, which in turn goes through the same process. The Chinese cultural ideal is the harmony and balance between rational and intuitive, masculine and feminine, heaven and earth. The only constant is change, the dynamic, ever-active movement of energy from yang to yin and back again. The universe, like the yin-yang symbol, is seen as whole, but its forces are interlocking, complementary, ever-changing aspects of its wholeness. Movement, and the movement of energy itself, is governed by the inherent nature of yin and yang.

This movement of yin-yang can be seen in nature and in the human body as well. The Chinese treat the body through what might be called "energy medicine" and they view the body as an energy body. They recognize the skin, flesh and bones, and they are aware of the internal organs, but they are primarily concerned with the constantly changing movement and flow of energy and with the nature of relationships -- relationships between different pathways, different flows, and different organs. They are concerned with circulation, with the proper

pathways and with the best means for enhancing circulation of the energy and for removing obstacles to this flow. They are concerned also with the circulation of many types of energy --'chi', 'shen', etc. -- and they also knew about the kinds that we have "discovered" recently in the west. More than 5,000 years ago the Chinese accurately described the flow of blood as a continuous circle controlled by the heart. Not until 300 years ago in the 17th century did the Englishman William Harvey correctly assess -- as the Chinese had some 5,000 years before him -- the true nature of the circulatory system and the heart's role in it. If they were right about the circulation of the blood, there is perhaps a small possibility that they were right about other matters. For blood, our river of life, was for them only one of many systems - and not even the most important one.

Chinese medicine attempts to maintain or achieve the yin-yang balance of the body through food, herbs, exercise and acupuncture. Acupuncture can help the energy which flows constantly through the body, 24 hours a day, move in a harmonious and balanced way through its proper pathways, the meridians. The meridians, like a system of rivers, canals and dams, carry what is called "chi" energy, the water of life, through the body, nourishing its various parts according to their own unique needs. Acupuncture points, like the lock on a canal or the dams on a river, govern the energy flow so that it is neither too fast nor too slow, too much in one place, too little in another. This alternating energy flow helps bring the body and its systems into balance and harmony with itself, its surroundings and its seasons. When this harmony is achieved and maintained, there is health. When the energy flow is out of balance, there is disharmony and a

tendency toward disease. In their observations of the seasons and of man, the Chinese also developed a pattern of the characteristic movements of five elements (fire, earth, metal, water and wood) whose interactions one can see actually govern the seasons of nature and of man. Likewise, these elements are related to the interactions of five basic colors, five basic emotions and five internal organs, the balance and harmony of which deeply affect personal health within oneself, as well as the health of personal, familial, economic and environmental relationships.

Historical development of acupuncture.

The theory of energy channels, the five element theory, and the theory of yin-yang are all essentail features of the traditional Chinese medical view of the body/mind continuum. Much of this work is summed up in the Confucian medical classic - The Yellow Emperor's Classic of Internal Medicine. This classic established the foundation for the basic theories of Chinese medicine. It included explorations of human physiology, pathology, viscera and blood circulation, as well as the principles of diagnosis, preventative treatments, coordination of the human body and the natural environment, and acupuncture and herbology. The Chinese used both observation of the living and analysis of the dead body. "For a living human being 5 feet tall with flesh and skin, one can measure him and palpate him on the outside. After his death, one can 'anatomize' him for observation."[1] Surgery based on these principles was practiced, and one of the traditional "nine types of needles," the cutting needle, was used for surgery on abscesses.

A number of times in Chinese history the different theories were

codified. The most well-known codifications took place in the Tang Dynasty between the years 627-649 when Dr. Zhen Quan revised the location of the points and verified the many acupuncture books and their diagrams. About 400 years later in 1026 under the Sung dynasty, Dr. Won-Wei-Yi further revised the points and made amendments for the location of each point. Such uniformity of description aided in the establishment of the Imperial Medical College. During the Sung dynasty the college had nine departments, and the core of the curriculum was the knowledge of internal organs, channels, acupuncture points and moxibustion as well as the extensive Chinese herbal pharmacopia. Dr. Wang-Wei-Yi skillfully designed and cast two bronze figures, one male and one female as a visual aid in teaching. Inside each figure were the internal organs and channels; engraved on the outside were the points and surface channels. Most acupuncturists, however, received their training by apprenticing themselves to a particular doctor or family of traditional Chinese doctors. Acupuncture therapy continued to grow in China, with a vast amount of accompanying literature and case studies over a long period of time. Chinese medicine ruled supreme until the period of the opium wars, when the European powers invaded and colonized China. During this period, Chinese medicine was denounced, attacked, and repressed by westerners. Many westerners thought acupuncture "pagan" and "unchristian," and two western doctors even called acupuncture and moxibustion "instruments of professional torture" and referred to acupuncture needles as "the deadly needles."[2]

The traditional medical system further deteriorated under Chaing Kai Shek and the nationalists. It has come back to prominence under the present

communist government, which has encouraged an integration and cross-fertilization of eastern and western practices. Using acupuncture as an anesthesia for surgery perhaps is most well known in the west. The present Chinese study of acupuncture, through a combination of traditional and western medicine, was paved by Lin Zlong-Lengs' 1899 text, Illustration of the Bronze Figure with Chinese and Western Medicine. This co-operative trend was continued by such studies as the 1934 "Study of Electric Acupuncture" by Tang Shi-Cheng which introduced electro-acupuncture to China.

Chinese education: Confucius and Kung Fu.

The classical approach to education can again be seen in terms of the yin-yang symbol. Each side of the symbol is represented by a different sage. Yang is represented by Confucius, or Kung Fu Tzu, who expounded a system of education that was designed to inculcate an appreciation and respect for the conventional social fabric of Chinese society. The aim was to govern the family, human relations, moral values, government and society by blending a philosophy of social organization, common sense and practical knowledge. The basis of this traditional, and tradition inspiring education, according to Confucius, was the six classics. These ancient books of philosophical thought, rituals, poetry, music, medicine and history represented the spiritual and cultural transmission of the holy sages of China's past. They are written in a classical Chinese quite different from our own language. Our western languages, especially English, show a bent toward abstract logical thinking, abstract signs representing clearly delineated concepts. In contrast, the Chinese style is compact, suggestive,

with a sound symbol bringing to mind complex pictorial images and emotions. Each written character is an organic pattern preserving the full complex of images and the suggestive power of the mind. Its intent is to influence and affect the mind through suggestion and paradox, rather than to present an abstract, intellectual idea.

At the center of Confucius' education is the Book of Changes, the I Ching, an ancient book of wisdom. As its title implies, it emphasizes the ceaseless transformation of all things and situations, the dynamic aspect of all phenomena. It is built on sixty-four hexagrams consisting of broken (yin) and unbroken (yang) lines, each a six- line combination of the two types of lines. The hexagrams represent the cosmic archetypes of energy, of constant change and movement, found in the patterns of nature and of human life. They point to the patterns of the Tao -- the ultimate, undefinable reality, the cosmic process in which all things are involved. There are constant patterns in the continual flow and change of nature, patterns which can be observed by man. The Tao's principle characteristic is the cyclic nature of ceaseless motion and change.

Confucius' Chinese name, Kung Fu Tzu, is ironically relevant, for he taught ways of realizing and expressing these traditions through kung fu, Chinese boxing. The literature of kung fu is full of the great powers, startling to our western minds, attained by Chinese boxing masters. Yet many Chinese view these "miraculous" powers as merely outward manifestations of a useful, instructive, external art -- Chinese boxing. Kung fu was useful in Confucius' day and throughout Chinese history because of the periods of feudal war and barbarian invasion, and because of the

social necessities of self-defense in so densely populated a society. The practice of kung fu could also lead, through bodily experience, to some of the ancient lessons of China's holy sages: yang turning into yin, the ceaseless cycles of change, the patterns and postures which brought the body into harmony with the Tao, and thus into a state of health. The kung fu exercises themselves, along with acupuncture and herbal treatment, could lead to a restoration of health, to a balanced movement of energy. Interestingly enough, even with all these benefits, with all these realizations both physical and philosophical, this approach to kung fu is regarded in China as merely external. In the Confucian system of education, Chinese boxing, as an exercise for health, well-being and self-defense, is presented as a most important and traditional method for realizing the lessons and wisdom of the ancient sages of China, both within oneself and with others, in harmony with heaven and earth.

Chinese education: Lao Tzu and the Tao.

There is also the Chinese tradition of the internal way, the mystical, intuitive yin way, represented by the aphorisms of the old master, Lao Tzu, contained in the internal classic, the Tao Te Ching. The distinction between king and sage is central to this tradition. As is stated in the Chaung Tzu, the second most important Taoist text, fully realized human beings "by their stillness become sages, by their movement kings."[3] To westerners, Confucianism represents the traditional and rational approach to training and life, to education and society, within the context of Chinese culture. Taoism represents the mystical, intuitive approach, with its complete

rejection of social conventions. It was especially practiced by elders, those who had undergone Confucian training as children, and social activity in their youth and maturity. Sometimes it was even "Confucist by day, Taoist by night." Frequently government officials, civil servants, doctors, generals and other classes would put into practice Confucian viewpoints in their ordinary, daily social life. On their own time, away from their work and social-familial commitments, they would practice the Taoist way. For Taoists, there are no polar opposites, merely two poles dynamically linked to one another. One strives neither for good nor bad, but rather maintains a natural spontaneous dynamic balance between what society considers 'good' and 'bad'. Change itself is merely a tendency which is innate in all situations and things. Since there is no outside force, the movements of the Tao are not forced, but occur naturally and spontaneously. The ideal of the Tao is not rational knowledge, but trust in the innate, intuitive, spontaneous and harmonious action of wu-wei, or effortless effort.

> Wu-wei (non-action) does not mean doing nothing and keeping silent. Let everything be allowed to do what it naturally does, so that its nature will be satisfied. . . . .By non-action (wu-wei) everything can be done.[4]

In western terms, the ideal of the Taoists is to become one with the Tao, not separate from the Tao and thus attain one's immortal body.

Taoists transformed themselves using various systems. As little is known of these systems in the west, we shall examine a system described in a book published in America. In The Book of Internal Exercises, Dr. Stephen Chang explains a system which used four pillars.[5] The first pillar is the I-Ching. Through the I-Ching, one studied the signs and symbols representing the phenomena of endless change occurring throughout the universe. One

also studied the social philosophy and transactional psychology for both individuals and groups contained in its 64 hexagrams. Then one learned how to act properly and in harmony with the Tao. (Mao Tze Tung and the communists used the I-Ching to help determine their military strategy in their fight against the western oriented nationalist warlords of Chiang Kiai Shek.) Thus the mind is prepared, and one may approach life with a rich and deep perspective of how things constantly change, and an awareness of the patterns as well as the cyclic nature of this change.

The second pillar is diet. First comes food and the attempt to discover and maintain a yin-yang balance, in harmony with the seasons and the environment, of tasteful, nourishing and attractive food. Second come herbs for their powerful therapeutic value. Finally comes the energy diet, in which the body is either partially or totally independent of food and herbs and is nourished directly by energy breathing and cosmic energy itself. The literature is full of references, examples and preparatory techniques to take one to a state of energetic, harmonious wu-wei, at one with the Tao.

The third pillar is the use of sexual energy as a prime means for meditation, internal transformation, and oneness with the Tao. This topic is extensively covered in a number of ancient tents, including the Taoist alchemical classic, Ts'an T'ung Chi, Green Dragon White Tiger. This work has been interpreted in innumerable ways. Sexual yoga can refer to the cultivation of the union of the "male" and "female" energies within oneself, with the intent of transforming oneself into the "divine child of realization." Even celibate monks have practiced this form of internal yoga. Sexual yoga can also be practiced by married couples who wish to spiritualize their

union, and use the strong energies of their partnership as a powerful means to realization. Or this yoga can be used by anyone, alone or with a partner, to harmonize the internal energies, and thus enhance one's sense of balance and health.[6]

The fourth pillar is internal kung fu, the internal exercises explored in William Berk's excellent Chinese Healing Arts: Internal Kung Fu. External exercises such as swimming, boxing, wrestling, weight lifting, tennis, external kung fu and karate may build attractive bodies, but they also deplete the energy of the internal organs, thus causing premature aging and illness. The literature is full of stories of masters who could fight and perform miraculous external tasks, such as walking up steep walls, but who died at fifty, their energy burned up. Peter Ralston, the first non-Asian to become world champion at the 1978 full contact international tournament in China, describes the balance between the internal and the external in this treatise On the Essence of Internal Martial Arts:

> Giving way, yielding, is not a meek activity; it is a positive one. Although passive in nature, it is effective in reality. By learning to yield and follow, sticking to activity without resisting it, we can form a real union with that activity. With this ease, we can take control without leaving the grace of this union. But this is a high level of Cheng Hsin (the Essence of Internal Martial Arts) that requires study and practice.
>
> Consider the effects of resistance: to oppose force with force you accomplish little at the cost of great effort and possible injury. To yield, however, requires almost no effort and no injury. So we must learn to increase our conscious sensitivity so that "a fly cannot alight, nor a feather be added."
>
> The apparent mishaps in our lives, physical and non-physical, are not incidents that stand alone; they are, in fact, a manifestation of the whole life. What is really going on? This is basically our pursuit: to learn the real activity in relationship and to observe the nature of our own selves. What we are

> continuously doing with our bodies, energy and mind is revealed in this martial activity in a real and dynamic way.
>
> In many practices one can fool oneself into believing a condition is so, that isn't. But in active psycho-physical relationship it is harder to do so. So we use the real and revealing method of Internal Martial Art to observe our tendencies, unconscious reactiveness, tension, points of view, etc. and to then work with them and develop from there. One aspect, the psyche or the physical, developed without the other is not accurately useful in life, for life is both.[7]

Internal exercises energize the entire body, balance the energy level, and promote a more effective functioning of the internal organs. They are an expression of the great art of self-healing. To become one with Tao, to reach a state which is translated by the term "physical immortality," the body must be more than just free of disease. It must also accommodate the additional energy which will transform the body into a vehicle unconditioned by time and space.

There are three categories of internal exercise. First are the exercises designed to teach correct posture and the proper way to sit, recline, walk and work. One set is designed to generate and balance the secretions of the endocrine gland system. Another set strengthens and balances the organs of the trunk of the body. A third set is designed to aid in strengthening, relaxing and controlling the entire nervous system. There are other sets designed to strengthen the limbs, muscles and bones. The natural result of these exercises is self-healing.

The second category is meridian meditation. Within meditation, one integrates and harmonizes the energy of the mind and body by balancing this energy and strengthening the pathways through which it flows. What acupuncture and acupressure accomplish for others, meridian meditation

accomplishes for oneself. Through this Taoist contemplation, the mind, body, energy and intellect become totally and consciously integrated. Then the individual becomes totally and inseparably enlivened by 'chi' or universal energy.

The third category is cosmic breathing or energy breathing. The energy is absorbed in various fashions, including directly through the acupuncture points which lie atop and interconnect the meridians which flow throughout the body. Energy breathing constitutes a vital step in self-healing and helps form an indivisible link with the energy permeating the universe. Thus one can and must utilize one's physical body to realize the Tao itself. Physical cultivation in this internal way is a direct means to the realization of the nature of reality. Other Taoist ways exist which are pure wu-wei -- no way at all. Taoists masters from this tradition have a tendency to laugh uproariously at any technique as worth much less than the games of preschool children.

T'ai Chi.

Within the west the Chinese exercise which is as well know as kung fu is t'ai chi. There are many different forms of t'ai chi, as well as external and internal t'ai chi. Its slow, rhythmic movements approximate and induce the strengthening of the meridians and the movement of the energy along these meridians. By working with the energetic level through movement itself t'ai chi balances both the mind and the body, bringing self-healing and well being. There are a number of classic commentaries on t'ai chi. Wang Tsung-Yueh in T'ai Chi Chuan Lun says:

> There are many boxing arts. Although these use different forms, for the most part they don't go beyond the strong oppressing the weak, and the slow resigning to the swift. The strong defeating the weak and slow hands ceding to swift hands are all results of the physical instinctive capacity and not of well trained techniques.[8]

However, We Yu-Hsing in another classic, Expositions of Insight Into the Practice of the Thirteen Postures says:

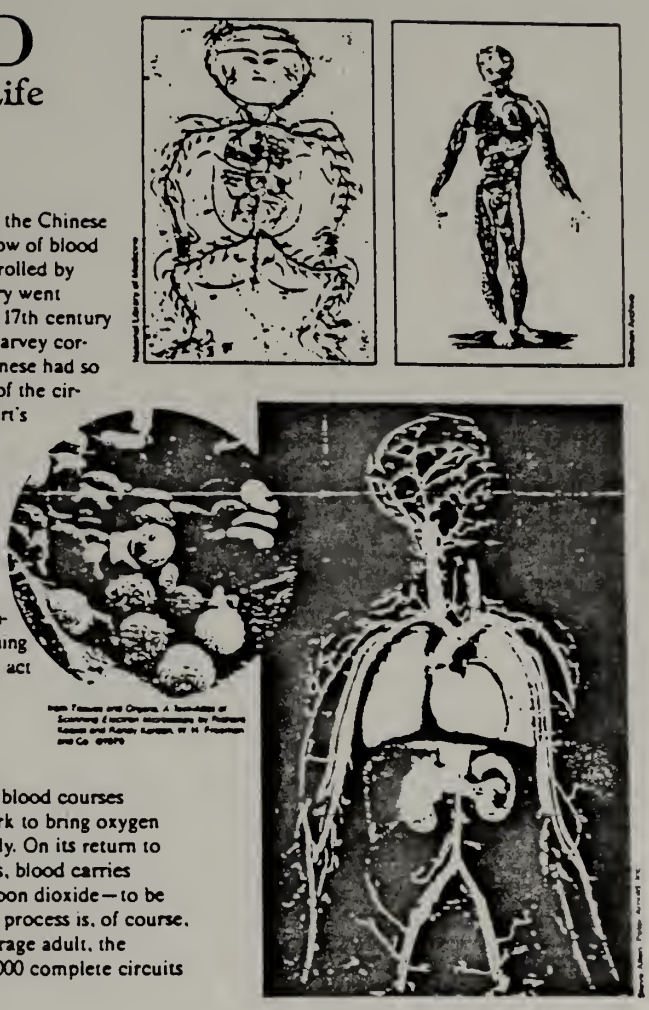
> The whole body relies on the ching shen (spirit), not on
> the chi (breath).
> If it relied on the chi
> It would become stagnant.
> If there is chi,
> there is no li,
> there is no pure steel.[9]

It is apparent that for the Chinese, either Confucianist or Taoist or both, physical cultivation becomes a means of realizing and manifesting their ancient social and mystical wisdom. Physical cultivation is a major pillar of Confucianist education and of the Taoist way. We start with what we have -- a body -- and like an athlete strengthen it and build it up, balance its internal function, and use it as a base to explore our true nature, the nature of the universe, and the nature of reality itself.

# THE BODY/MIND CONTINUUM:
# A CHINESE PERSPECTIVE

From The Essence of T'ai Chi Ch'uan The Literary Tradition. Lo, Jeng; Inn, Martin; Amacker, Robert; and Joe, Susan.

Fig. 6. The yin/yang symbol surrounded by the hexagrams of the I Ching



# BLOOD
## The River of Life

### The Search for the Circulatory System

More than 5,000 years ago, the Chinese accurately described the flow of blood as a continuous circle controlled by the heart—but the discovery went ignored. It wasn't until the 17th century that Englishman William Harvey correctly assessed—as the Chinese had so long ago—the true nature of the circulatory system and the heart's role in it.

### The Smallest Links

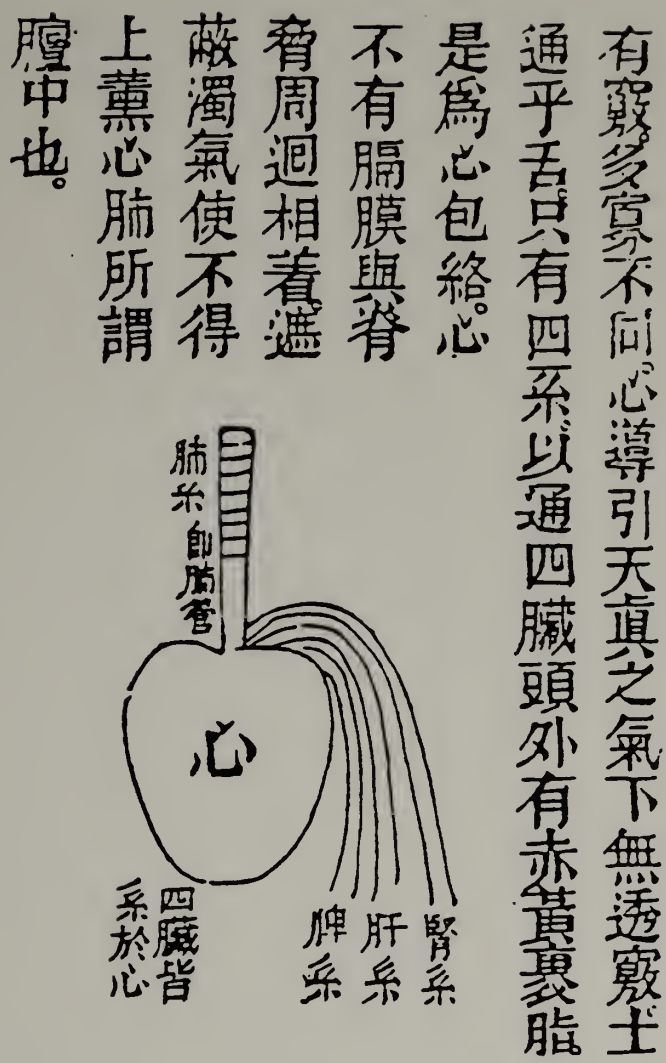
Some capillaries are so small that blood cells must move through one at a time, single file. Capillaries—the tiniest tributaries in the circulatory system—bring nourishing blood to the body's cells and act as connecting links between arteries and veins.

### The Great Exchange

On its way from the heart, blood courses through the arterial network to bring oxygen to cells throughout the body. On its return to the heart through the veins, blood carries away the cells' waste—carbon dioxide—to be expelled by the lungs. The process is, of course, continuous, and in the average adult, the blood makes more than 1,000 complete circuits every day.

From The Human Body. U.S. News Books.

Fig. 7. The circulation of blood: Chinese and Western views




The thin lines pointing below indicate the connection of the heart with (from right to left) the kidneys, the liver, and the spleen. The tube leading into the heart from above forms the connection with the lungs and the trachea.

From: *Ling Shu Su Wen Chieh Yao*

From The Yellow Emperor's Classic of Internal Medicine, translated by Ilza Veith, 1949.

Fig. 8. The heart


From The Yellow Emperor's Classic of Internal Medicine, translated by Ilza Veith, 1949.

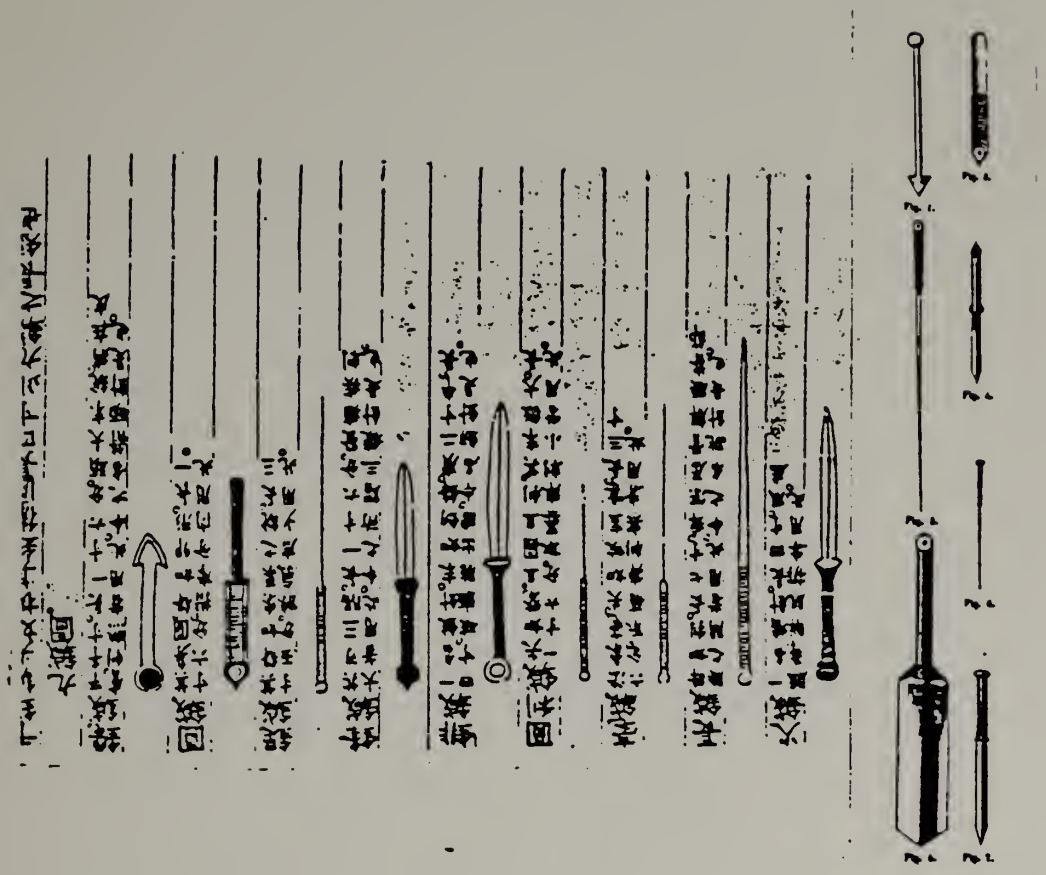
Fig. 9. The heart and kidney meridians


The lower drawing shows how a physician feels his own pulse in order to compare it with the patient's pulse, as shown in the upper drawing. The three pulses are indicated on each wrist.

From: *T'a Chu Ko Chieh*, by Chang Shih-kuei of the Ming period, published in 1310

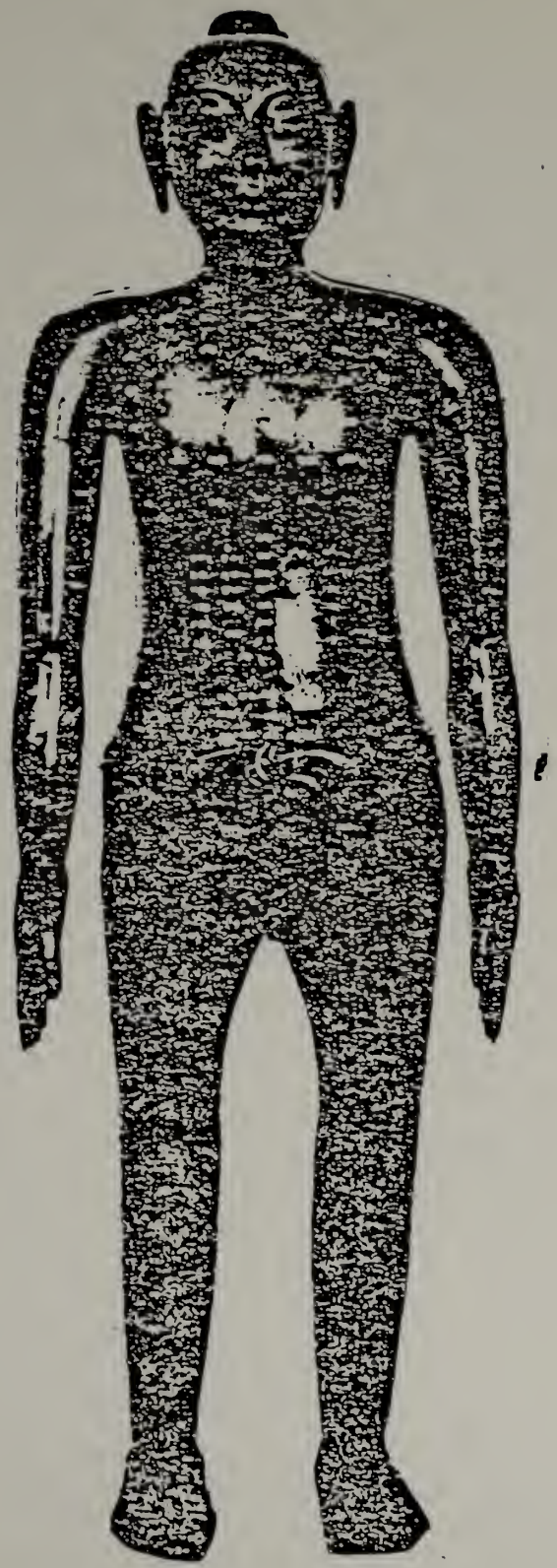
From The Yellow Emperor's Classic of Internal Medicine, translated by Ilza Veith, 1949.

Fig. 10. Reading the pulses



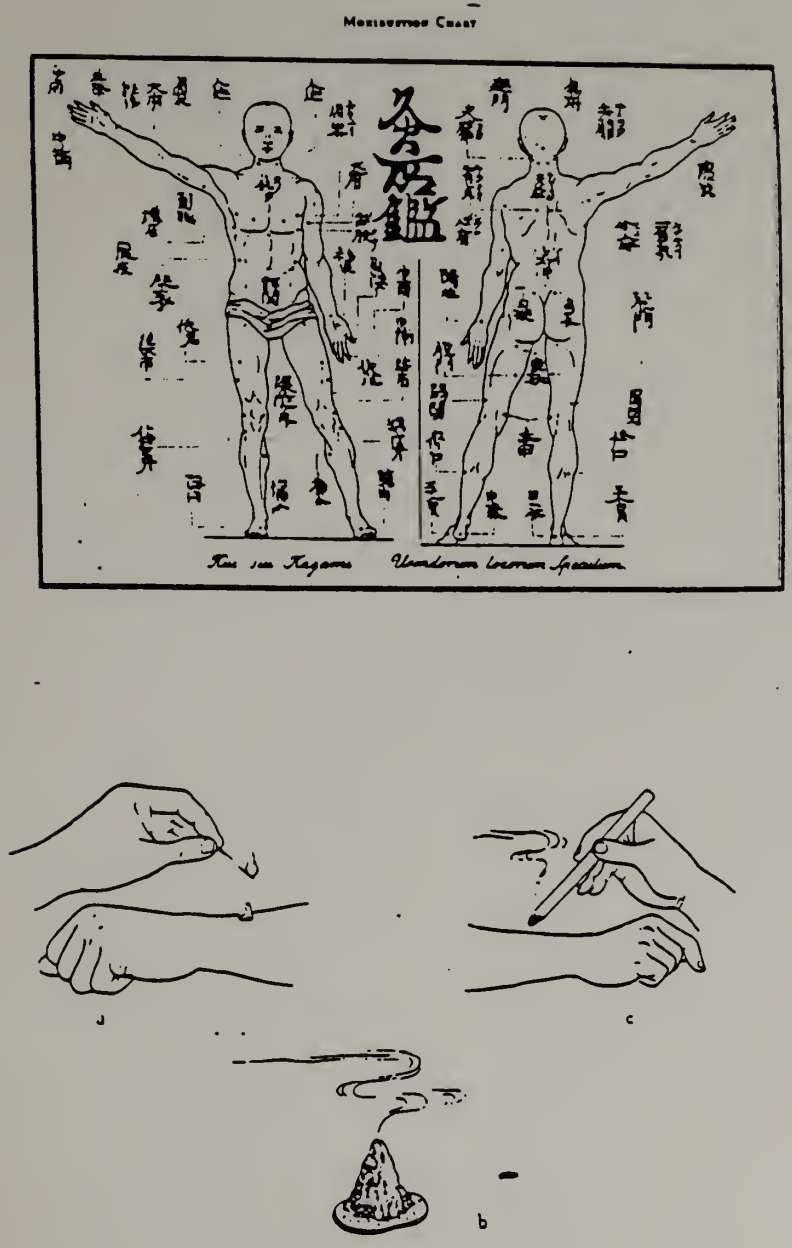
In Zhen Jiu Da Cheng (Compendium of Acupuncture and Moxibustion) compiled in 1601, nine kinds of needles and their various clinical applications are recorded. From An Outline of Chinese Acupuncture, People's Republic of China, 1975.

Fig. 11. Nine types of needles



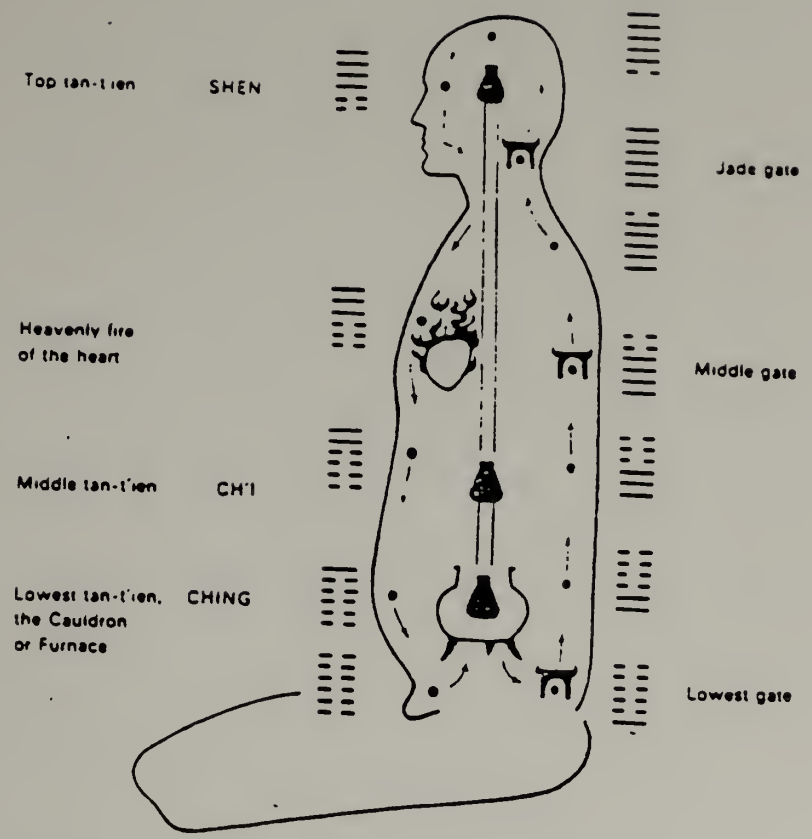
This bronze figure showing acupuncture points is a reproduction of one cast in 1443 A.D., during the Ming Dynasty. From An Outline of Chinese Acupuncture, People's Republic of China, 1975.

Fig. 12. A bronze figure for teaching acupuncture.



From The Yellow Emperor's Classic of Internal Medicine, translated by Ilza Veith, 1949.

Fig. 13. Moxibustion chart




From The Book of Internal Exercises, Stephen T. Chang, 1978.

Fig. 14. Taoist yoga: the fire of eternal life.

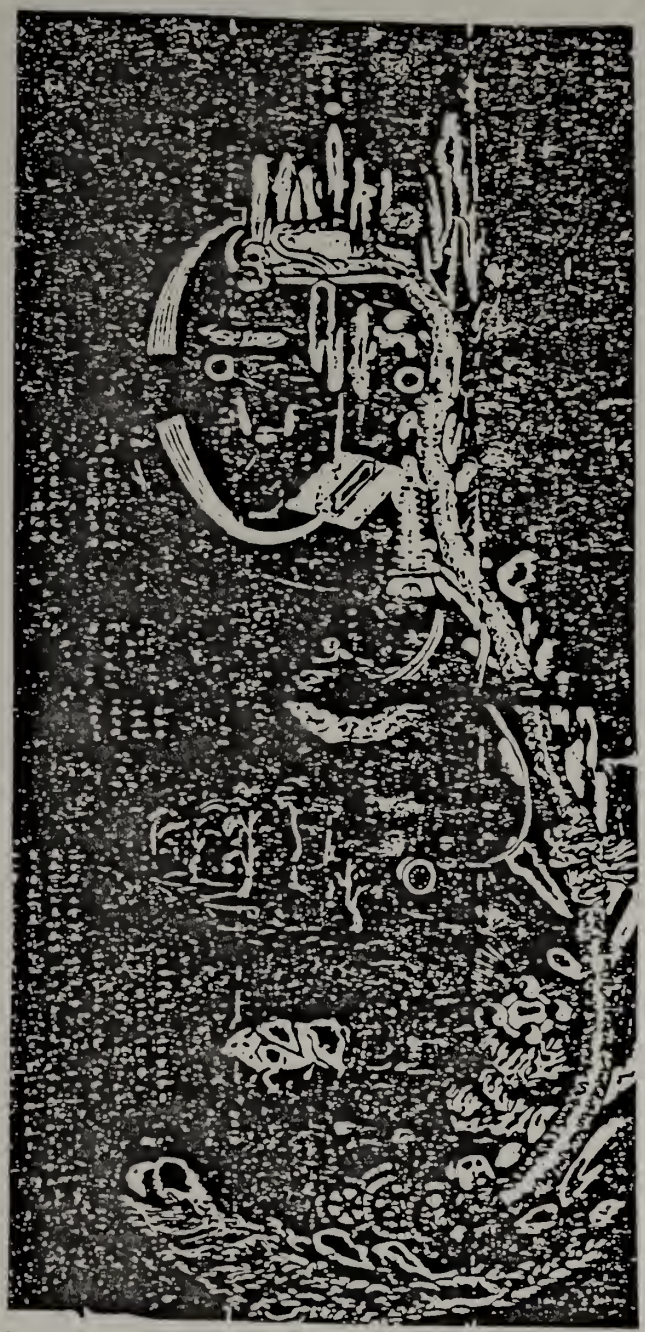


Diagram of the Subtle body, mapping the Inner Alchemy. Rubbing dated 1886. Ch'ing dynasty.

From The Book of Internal Exercises, Stephen T. Chang, 1978.

Fig. 15. The subtle body of Taoism.

## GREECE AND THE ISLAMIC CONNECTION

It is interesting that we possess a more coherent awareness of Chinese culture, and of the role of education and of physical cultivation in the realization of their viewpoints, than we do of our own ancient western traditions, including that of the Greeks. Much of what we know about the Greeks, including most of the classical manuscripts, was not passed down through western culture. Greek science and literature was destroyed and forgotten, barely existing in western Europe until we came in contact with the Muslim world. The Muslims had kept many of the original Greek and Latin manuscripts, and we received them through our contact during the time of the crusades as well as from the great Sufi universities and centers of science, scholarship, mathematics, learning and spiritual awakening of Moorish Spain. After the expulsion of the Moors, much of the inquisition was designed to torture and eradicate anyone left in Spain who was even faintly connected with these centers of learning and awareness. The 800 year Moorish rule in Spain was a time of great harmony between Muslim and Jew. The Christian persecution drove the remnants of this culture, including the ancestors of Spinoza, the black Jew of Holland, out of Spain. Indeed, the vaunted renaissance of the west is the point from which western Europeans now date their theories of progress and superiority. Yet this renaissance, which is presented as springing up spontaneously in the west, evolved after contact with the scientifically and socially superior culture of Islam, through Moorish Spain and through the port cities of Venice and Florence in Italy. Europeans did reasonably well with this gift and eventually built on it, adding tools such as gunpowder from China. However,

most of what we praise as original thinking among Europeans is rather a rehash of what filtered down to Europe from the Muslim world.

The lost tradition.

Our knowledge of our own classical civilization, the golden age of Greece, has not been passed down to us through a stil active living tradition, with its own practitioners and exponents, like that of China and India. Instead, it has come to us secondhand in fragments and pieces, with just a partial record, and no apparent living tradition. Ironically, this has been philosophically useful in enabling us to look back to a golden age, in this case Periclean Athens, where we see the roots of our culture, heritage and wisdom. In America, Thomas Jefferson used the most visible remnants of that world, its magnificient architecture, to derive a neo-classic version for America itself. In Monticello, and in the University of Virginia, we see the fruits of this connection, instant wisdom and tradition for a raw and vibrant land, a replanting of the old traditions in the new world. Jefferson was also a mason, as were many other leaders of the American revolution, and those of the revolutions in Central and South America as well. After we explore the Greek experience, we will return briefly to this connection.

Architecture.

The Parthenon is a prime link with our Greek golden age. It is an extraordinarily strong and subtle building, only recently damaged by Turkish and British gunfire and pollution itself. The apparently perfectly straight lines of the Parthenon are actually curved. Their slight curvature gives them the appearance of being perfectly straight. So the Parthenon is an

example of that exquisitely beautiful celebration of form and symmetry and proportion we find in Greek architecture. So too do we find this in Greek sculpture, ranging from the Elgin Marbles to the Venus de Milo.

Physics.

The sages of the Milesian school in Ionia, in a culture where science, religion and philosophy were not separate, gave us the word "physis," from which comes the derivative, "physics". Indeed, physics was for them the endeavor to see into the essential nature of all things. Their organic and holistic view, in which there is not even a word for matter since all forms of existence are manifestations of "physis" and thus endowed with life and spirituality, is akin to the viewpoints of ancient Indian and Chinese philosophy. Thales saw matter as alive and all things as full of "gods". Anaximander first saw the human body as "supported" by air, and from that saw the universe as an organism "supported" by the cosmic breath, the "pneuma," similar to the Indian "prana."

We have already mentioned Democritus and the Greek atomists in a previous chapter, "The Cult of Rationality". Let us now explore a Greek mystic and scientist whose writings are often mentioned in connection with modern physicists. Only fragments remain of Heraclitus' writings,[10] but they are pregnant fragments akin to the Taoist writings of China. "Everything flows," shows his awareness of continuous change. "An ever-living fire, kindling in measures and going out in measures" shows his awareness of the cyclic nature of change. "The way up and down is one and the same" shows change as a dynamic interplay of opposites. "God is day night, winter summer, war peace, satiety hunger" shows that all opposites

are both polar and united. "Cold things warm themselves, warm cools, moist dries, parched is made wet" reminds us of the constantly changing union of opposites. This unity he called the "logos," a term which reappears in the Gospel of St. John.

Deductive reasoning.

Although these views of nature closely parallel those of modern physics, the Greeks arrived at them through quite a different mental process, a different way of thinking. The Greeks by and large used deductive logic and reasoning, deriving their models from fundamental axioms or principles. The rational model of modern science was largely foreign to Greek thought, until the empirical, inductive methods of Aristotle. Not only did the Greeks give us "physics," they gave us a beautiful deductive mathematical model, Euclidian geometry. This model, in their architecture and sculpture, expressed their profound sense of proportion, form and symmetry.

Education.

Greek education varied from city state to city state.[11] In ancient Athens during the golden age of Pericles, education consisted primarily of three subjects: writing (which included mathematics which were written in letter form), music and gymnastics. Thus the gymnasium was a most important institution in Periclean Athens. Physical acitivity in various forms became a major area for both education and enjoyment. We find that the gymnasiums were also centers of political and social intercourse. In one sense political, economic and social life was deeply intertwined with the

pursuits of fitness and education as found in the gymnasiums.

The importance of the gymnasium.

In the golden age of Periclean Athens, in the days of Socrates and Plato, the gymnasium played an integral and important role in education. Here one could find the Greek pursuit of excellence in form in the actual sculpting of human bodies. One could also learn of beauty and proportion in the universe by observing the human body at rest and in movement. The gymnasium was a gathering place for the students of Socrates, and an important cultural meeting ground of Periclean Athens. The pursuit of excellence, the extension of one's limits as in the marathon, the social lessons of competitive games as in the olympics, all were valuable cultural lessons. The olympic games functioned as a substitute for war, as a sublimation and transmutation of the war-like tendencies of competing city-states.

We do not know for certain whether physical cultivation was used to explore and educate oneself in a culturally acceptable way, or whether it was used to delve into, to become one with, the nature of reality as it was with the Taoists. However, we do possess Plato's record of the ideal, Utopia, with its training of mind and body in the gymnasium and at the feet of masters. Plato places great importance on the role of the gymnasium in his ideal society. He even places some of the Socratic dialogues within the gymnasium.

Medicine and the gymnasium.

In Socrate's dialogue with Charmides,[12] we find a plea for a holistic approach to medicine that, in a somewhat more modern translation, could serve today as a manifesto for holistic health education. We continue to ignore that much of what we know of Hippocrates and Greek healing arts was based on physical fitness, on a formula similar to the Chinese formula of good food, sunshine, fresh air and exercise. Many of the healing tools were interwoven with the gymnasium -- and were perhaps an integral part of that particularly Greek approach to education.

Here we could quote directly from Hippocrates,[13] the patriarch of Greek medicine. He enumerated among his therapies the following: heliotherapy, hydrotherapy, massage, manipulation and exercise. This basic approach also incorporated the use of herbs and other medicines. (Indeed, Lauren Berry, a Registered Physical Therapist who has done extensive research into Greek medical traditions, has discovered over 240 types of manipulation and manual techniques used by the Greeks which form one basis for Berry's own system of "physical medicine.") Thus for the Greeks of Periclean Athens, the gymnasium was a key institution of education, as well as one of the three major pillars of the whole educational system, with a great influence over many facets of Athenian life.

No set schools.

One of the other factors of their educational system is important for us. They had no set "schools" (or schools as factories) as we know them. Instead, individual teachers would come to town and set up shops. The

"schools" would then form around these teachers. There was, in effect, an apprenticeship system for such subjects as medicine, or any of the other arts. We find the same sort of phenomenon today springing up around the fitness boom, the self-help movements and the introduction of oriental schools of medicine and martial arts. The proliferation of schools formed around particular teachers or methods is both an adaptation of oriental tradition, and a manifestation of the American entreprenuerial experience. Either way, our experience in this area is perhaps similar to that of the Greeks. Will Durant states that a big problem was the expense as well as competence of some teachers.[15] We may have a similar situation today. On the other hand, some of the schools and some of the teachers were extraordinary. One particular point is worth noting: we now have a parallel educational system, a free enterprise one based on individual skills and apprenticeship. In this sort of educational free market, the better schools may succeed, the worse ones fail. Education may take seed and bear fruit outside of the formal school structure.

Fascinating fragments.

We also possess some tantalizing fragments from the work of Pythagoras who said: "All things are numbers."[16] Both Plato and Pythogaras imply that there are physical exercises, including music and dance, to realize in oneself the ultimate awareness of mystical proportion, a Greek numerical version of the hexagrams of the I Ching. There is also that world which has been closed to us, the world of the Greek mysteries, where we might have truly found such a use of physical cultivation. Since there appears to be no living tradition of these mysteries, with their dances and

celebrations, we do not really know.

The medieval connection.

Keeping in mind Socrates' statement, "I know that I know nothing," let us examine the work of M. Frederick Lionel, a noted French scholar of the hermetic tradition.[17] M. Lionel claims that not only has a derivation of this psycho-physical tradition of exercise and healing been passed down in Europe through various guilds, but also through the hermetic tradition of the masons. They claim to have passed on the secret of the golden mean or golden ratio, the key to much of Greek architecture and sculpture, which reappeared in Europe at the time of the building of the Gothic cathedrals, and much later in the works of DaVinci and Michelangelo. He states that the knights templar were responsible for bringing to Europe the means of building these cathedrals, as well as creating a remarkable confluence of economic and social support for their erection. Largely ignored by western historians, and at one time even suppressed by the church, this period is remarkable for the temporary rising of a whole different economic and social system opposed to the existing feudal system. The knights templar patrolled the highways and defended the poor, both the serfs and the craftsmen, from the ravages of the feudal lords. The poor and the craftsmen in turn built these great cathedrals under the direction of masons protected also by the knights templar. Chartres itself was largely built by the donations of these poor, although as it was nearing completion, larger gifts were received and acknowledged. Temporarily a new and different economy and education sprang up, until it was put down some time later by both the church and the feudal barons. Conventional history has made the

mistake of lumping this whole period together, and of suppressing the works of the knights templar as effectively as they were later suppressed by the various feudal lords and the bishops.

European psycho-physical practices.

In a fascinating treatise,[18] M. Lionel also asserts that the knights templar also had a whole series of psycho-physical exercises designed to aid in the internal realization of the alchemical ideal, the transformation of the dross of the mind and body into the gold of awareness of the nature of reality. Not only did they provide self-defense for themselves and the poor, a view of the universe and of nature as whole and alive, and a practical economic framework to realize and express this view, but they also provided a practical education both internal and external, utilizing physical cultivation to achieve and enhance this awareness. Indeed, medieval swordplay, especially that propounded by the knights templar, may have been a European version of the Japanese bushido, the way of the warrior and the sword, and of the spiritual and martial cultivation of China. M. Lionel further asserts that from this source there is still a living tradition found in that most interesting of western martial arts, French boxing. This French boxing art has been explored further by Robert Smith,[19] a student of martial arts who claims it has an external and internal side, much like Chinese boxing itself.

What we know as Swedish massage may have similar antecedents. This system was brought to Sweden from France by the famous Swedish swordmaster, Peter Ling. Ling studied extensively with French swordmasters, who themselves might have retained some of the knowledge

of spiritual swordplay. Ling's original version of what is now Swedish massage was an extensive, integrated system of health, fitness and psychophysical evolution. What we know today is a rather poor descendent. Likewise, such a tradition may have existed in England. At least that assertion is implied in the 1656 English natural healing text by the Augustinian monk, Friar Moulton, The Compleat Bone Setter.[20] This tradition of English "bonesetters" remained alive, and culminated in the extensive works of James Cyriax, M.D. and John Mennell, M.D.[21] However, in the writing of Cyriax and Mennell the emphasis is on rational medical jargon, without any reference to psycho-physical cultivation. In America, Lauren Berry's "physical medicine" is a direct descendent of the traditions of Swedish massage and English "bonesetting." Berry's "physical medicine," from my experience and that of my clients, greatly improves one's ability to successfully practice various psycho-physical disciplines.

The Islamic connection.

Where did the knights templar gain access to such a vast array of knowledge so different from that which existed in western Europe at that time. M. Lionel asserts that their knowledge and experience came directly from contact with Islam, and especially from contact with the learned Sufi mystics of Islam. The story of the great and unacknowledged cultural transmission from the high civilization of Islamic countries to the backwards and barbaric Christian countries of western Europe is most instructive. Most of Greek and Hellinistic science and literature, including Aristotle, Ptolemy, Galen and Hippocrates, as well as centuries of Islamic science, literature and medicine were introduced to Europe and changed the course

of European history. It is important to keep this story in mind as we enter our age of communication, with its own emphasis on both technology and knowledge.

Few western works tell this story, among them Bernard Lewis' beautifully illustrated Islam and The Arab World.[22] A short summary of this great cultural transmission is contained in James Burke's Connections.[23] Burke puts no special emphasis on the Islamic connection. For him it appears to be just one of a chain of events leading to the development of the computer. However, as will become evident, there is much more we can learn from this tale.

The belly-ache that saved the west.

The story begins in A.D. 765, in the newly founded Abbasid capital of Baghdad, when the second caliph, Al Mansur, became quite ill with a stomach disorder. Baghdad, the new capital, was 150 miles from Jundi Shapur, a Christian monastery in the southern mountains of Persia. The monastery was famous for its medical school and its hospital. The Christian monk, Bukhte Yishu, who headed the school, was summoned to Baghdad. In curing the caliph of his stomach ache, he changed and enriched the course of Islamic and western history.

For 150 years before Jundi Shapur, the monks had lived further north at Edessa, which was under the sway of the Byzantine empire. The Byzantine emperor had closed Edessa, and thrown them out. The monks had been in Edessa since 431 A.D., when they were expelled from Constantinople with their leader Nestorius, the ex-partriarch of Constantinope who was exiled for heresy. For 150 years at Jundi Shapur they had not only run a

medical school, they had also translated Greek and Persian texts into their language, Syriac. These texts included much of the Greek and Hellenistic science, astronomy, medicine, mathematics, literature, philosophy and astrology, that had been lost to the west with the destruction of the library and the university in Alexandria.

After his cure, Al Mansur convinced Bukhte Yishu to return to Baghdad with some of his monks and set up a hospital. The same nestorian Christian monastic order ran the hospital for 200 years, and the Syrian versions of Hellenistic learning were translated into Arabic and altered the course of Arabic medicine, science and philosophy.

Sometime later in Al Mansur's reign, a scientist from the observatory at Pataliputra in Northern India arrived at the caliph's court. Pataliputra had once been under the domain of Alexander the Great, who had taken much of Greek culture there, including the Hellenistic science of astronomy. Under the reign of the Gupta dynasty, Indian astronomers had compiled the Siddhartha, a manual of observational data on the stars. In the Siddhartha, Indian mathematical techniques were introduced into the Greek tables, thus bringing the decimal system to the science of astronomy. It was the Siddhartha that the Indian scientist translated into Arabic, thus bringing to the Arabs the Greek map of the stars enhanced by the sophisticated Indian system of decimal mathematics, which are known to us as "Arabic numerals."

"The Great Work".

One of the first Syriac texts translated was Ptolemy's System of Mathematics. The Arabs called Ptolemy's work the Almagest, "The Great

Work", for it was the greatest collection of astronomical data known at that time. Not only was the Almagest a catalogue of stellar movements, it also gave precise instructions for the construction of instruments which could make exact observations of star position. Perhaps from this source came the Arab perfection of the astrolabe, the basic astronomer's tool for the next 700 years. In Islam it was essential to know the direction of the holy city of Mecca, for Muslims were required to pray five times a day while facing Mecca.

Al Mansur's cure is important because his cure demanded an exact knowledge of celestial mechanics. An important aspect of the medical science of Bukhte Yishu, handed down from Hellenistic times, was medical astrology. Here was a Greek version of 'energy medicine,' although the "energy" was the general patterns of the stars and the universe which influenced certain organs or energy flows in man. Medical astrology was used extensively in diagnosis and treatment, as different herbs, metals and cures were associated with different planets and stars, as well as with different parts of the body. As the Graeco-Arabic knowledge passed on to Europe, it is indeed ironic for us to realize that the two major disciplines of the new European universities of Paris, Oxford and Cambridge were medicine and astrology.

The libraries of Moorish Spain: the lifeblood of European thought.

There were four major connections through which Graeco-Islamic learning passed to Europe: Moorish Spain; the Italian trading centers of Venice, Genoa, and Southern Italy; the crusades into the holy lands; and the remnants of Eastern Orthodox Christian culture still in Constantinople. The

Arab conquest of southern Spain in 711 A.D. led to an incredible flowering of art, science, learning, architecture and poetry. Moorish Spain, on the outer edge of the great sphere of Islamic dominance, became for many centuries a repository of the best scholars and artisans in all of Islam. By 950 A.D., after 200 years of Moorish rule, the great library at Cordoba had over 600,000 manuscripts, more manuscripts than existed in all of France at that time.[24] From this time until the expulsion of the Moors from Spain in 1492 there began a gradually increasing flow of Islamic knowledge to Europe.

Europeans, ranging from Gerbert, at one time head of the cathedral school at Reims and later pope, to St. Francis of Assisi, are rumoured to have studied in Moorish Spain itself, or in the adjacent Christian kingdoms. Some Islamic histories claim St. Francis spent a number of years studying among the Sufi mystics and masters of Moorish Spain and Morocco. Gerbert arrived in Christian Spain in 940 A.D. Back in France about 985 A.D., Gerbert wrote a treatise on astrolabs and built a planetarium, a globe of the night sky, and a wooden cap incorporating a sighting device for finding stars. As the first known European to argue for the "influence of the stars," and because of his position as pope, Gerbert had a powerful influence on the establishment of a European education profoundly influenced by Islam.

Europe discovers Aristotle and Ptolemy.

Over a hundred years later, in 1105, came the most important event in the intellectual and scientific revival of Europe -- the fall of Moorish Toledo to the Christians. The Christians not only captured Toledo, they captured its libraries. Unlike later Spanish Christians in the western hemisphere,

they did not burn all the books and slay or enslave all the learned. Instead, the Christians, surveying the store of Greek classics and Arabic works, created a school of translation drawing heavily on Jewish scholars from both the Christian and Moorish kingdoms. The translations staggered barbaric and ignorant Christian Europe. One school concentrated on the works of the great mystic, scientist, and renowned Arabic physician, Ibn Sina, known in the west as Avicenna. Avicenna's medical and philosophical treatises drew heavily on the logic of a Greek philosopher forgotten in the west, one Aristotle. Aristotle's return to prominence in the intellectual life of Europe was followed by an intellectual pilgrimage by Gerard of Cremona in Italy. Gerard came to Toledo looking for the lost works of Ptolemy. Since Ptolemy's Almagest was so important a work in Arab science, Gerard easily found his man. By Gerard's death in 1187 he had translated over 90 Arabic texts into Latin, including the Almagest. The Almagest swept through the European scientific world like a storm. The height of the period of translation came in 1276, when Alfonso the Wise, King of Castile, collected a group of scholars, including again many Jewish scholars, and ordered new translations of the works of Avicenna, Aristotle, and Ptolemy as well as of many other major works. (One can contrast such wise action with the utter destruction through disease and design of the great civilizations of the western hemisphere by later Spanish barbarians. In Mexico and Peru, the Spaniards found intriguing cultures in many ways far superior to their own. What has the whole world lost by their wanton destruction? It is a particularly instructive lesson for us today in this age of telecommunications and computers, and awareness of diverse cultures from

China, India and Japan, from Europe, Africa, Asia and the Americas.)

Graeco-Hellenistic-Christian-Arabic-Islamic medicine becomes European medicine.

Along with philosophy and science, of particular practical importance was the introduction of Arab medicine to Europe. Arab medicine, known in Arabic as "yunni" or Greek medicine, was brought to Europe by a renegade black physician, a Muslim turned Christian, Constantine the African. In the 10th century, Constantine helped establish the School of Salerno near Naples, under the protection of the Norman ruler, Robert Guiscard. Constantine organized the school around the basic medical curriculum of the Arabs. In conjunction with John the Saracen, Constantine translated into Latin a basic Arab medical text, the Royal Book, written in the tenth century by the physician to the caliph in Baghdad. Called in Latin the Liber Pontegni, this text contained twenty chapters on subjects including urinalysis, dietetics, gynecology, surgery and the capillary system. The school's reputation in the field of surgery was solidified during the first crusades in the eleventh century. Its medical curriculum consisted of three years of general study, four years of medicine, and a final year under the supervision of a physician. For specialization in surgery, a ninth year was needed.

The Rule of Health.

In the twelfth century, the School of Salerno, in effect the first university in Europe, published the Rule of Health, which brought together all it knew in the realm of medicine into a set of medical precepts.

Hygiene, nutrition, medical remedies, anatomy, pathology, therapy and pharmacology were all contained in The Rule. For the next 400 years, The Rule was the basis for all medical teaching in Europe. Its 2500 verses contained simple and effective rules on diet and hygiene. It also introduced to Europe the medical theories of Hippocrates and Galen, the great Hellenistic physician. Arab medicine was influenced philosophically by Aristotle and Ptolemy, and practically by Galen and Hippocrates.

The medical theories of Hippocrates and Galen.

Both Galen and Hippocrates expounded a theory of disease similar to that found in classical Chinese and Ayurvedic Indian medicine. (Here we must keep in mind the potential cross-cultural influence of the Hellenistic empire that stretched to India and to the major trading cities and routes that led to China.) Galen stated that the body had four basic humours: blood, phlegm, yellow bile and black bile.

> "These humours were associated with the material substances in the world around: blood was associated with heat, phlegm with cold, yellow bile with dry and black bile with wet. Fire was hot, and so was summer. Water was cold and so was winter. Air and spring were dry, earth and autumn were wet...By the mid twelfth century Salerno was able to handle fractures, wounds, fistula, stones, hernias, ulcers, abcesses, skin disease, urine problems, and general surgery; anaesthetia, in the form of a sponge soaked with the juice of a narcotic plant, was used regularly."[25]

Hippocrates, the 5th century B.C. Greek physician, stated that the temperment of a person depended on which of the humours was dominant. Someone characterized by wet, black bile was pessimistic and loved sad songs; by dry, yellow bile was choleric; by hot, dry blood was sanguine and optimistic; and by cold wet phlegm was lazy and phlegmatic. However, one

western writer interjects a commonplace modern European prejudice when he states: "The connection with astrology was close enough for much of the common sense medical knowledge in the Rule to give way to the mumbo-jumbo of the humoural theory of treatment."26

Medical astrology and the theory of the humours.

In actuality, the humoural theory has no more or less mumbo-jumbo or cultural prejudice in it than has any other medical theory, including the theories of rational, allopathic medicine. It is odd that western prejudice so casually dismisses the very diagnostic tool, Galen's and Hippocrates' humoral, astrological theory of disease, that led to the diagnosis and cure of that fateful stomach ache, which in turn led to the re-injection of Graeco-Hellenistic science, philosophy and medicine into Judeo-Christian-Islamic cultures. Galen's medical theories of the influence of the humours and the stars can be seen as an attempt to recognize the essential interconnectedness of humanity, nature, the world and the cosmos, and to discover some way of viewing this vast complexity that would bring order out of chaos. As in Chinese and Ayurvedic medicine, disease was seen not just as symptoms, but as a potential expression of a lack of balance between oneself and nature. Such lack of ease led to illness, and the physician needed to look behind a temporary cure of the symptoms to a discovery of the deeper root causes of imbalance. This looking behind the obvious physical symptoms to the deeper imbalances that led to disease is now largely absent from rational medicine, which does not recognize the existence of deeper imbalances and influences. Hellenistic, Arabic, and

medieval European physicians helped restore balance by designing individual regimes of food, exercise, fresh air, sunshine, herbs, massage, manipulation, hydrotherapy and other natural means. The Rule also promoted a basic common-sense regimen of preventive medicine --including "get up at dawn and wash at least the hands and the eyes, preferably in cold water. Then comb the hair and brush the teeth. . . . Eat a hearty lunch but a light supper. . . Try to get never less than six hours sleep."[27]

The foundation of classical medicine.

The medicine of classical cultures such as China, India, Greece, Islam and medieval Europe stressed a strong, common sense preventive base and built on that with various natural therapies. They also included surgery for wounds, or when necessary as a last resort. The various systems of deeper diagnosis recognized the interconnectedness of the body and the mind with the whole of nature, and were thus an attempt, different in each culture, to look behind the symptoms to find the basic influences and root imbalances out of which grew disease. Such theories established a point of reference from which to view man and the universe and from which to make sense of the connections and energetic influences. Burke himself sums up the influence of the Islamic connection:

> "As the new medical knowledge spread into Christian Europe from the south, new astronomical knowledge came in from the west, from Spain. Suddenly the Europeans had tools with which to examine the universe, and tools to investigate the workings of the human body. Small wonder that the two principal disciplines in the new universities of Paris, Oxford, Cambridge and Montpelier were medicine and astrology. The Arab medicine worked better than whatever primitive techniques the Europeans had used before, and the revelation of the mechanical universe acted as a stimulant to philosophy.[28]

The unspoken mystical connection.

There is a connection not mentioneded by western writers -- the influence of the great Sufi mystics of Islam on groups such as the knights templar and the masonic guilds who constructed the gothic cathedrals. As M. Lionel points out, the masons, with the construction of Sant Chappelle in Paris, suddenly sprung on Europe a highly sophisticated art of spiritual architecture. Chartres' very proportions, design, decorations and embellishment, from the three doors of the old and new testaments and the apocalypse to the chakra-like rose windows, embodied in its very being all the principles of transformative spiritual science and realization. Indeed, in Sufi allegory, the rose itself with its thorns is the essential image of spiritual transformation and the unfoldment of our thorny human nature into its essence, the invisible and pervasive perfume of realization.

Sufi practices of transformation.

The Sufi mystics possessed powerful methods for psycho-physical transformation and internal realization. They began with a simple "Watch your breath and watch your feet" and a constant remembrance of God, with God's name always on the breath. Through the eyes of the Sufi, God was seen as having 99 qualities. These 99 qualities were major differentiations from which all forms and interactions emerged. From the point of view of the Sufi mystics, this whole universe -- the world, nature, and all of us within it -- was all Allah, and we were all parts of the dynamic, ever changing qualities, interconnections and relations of the cosmic web of God.

The suppression of Christian mysticism.

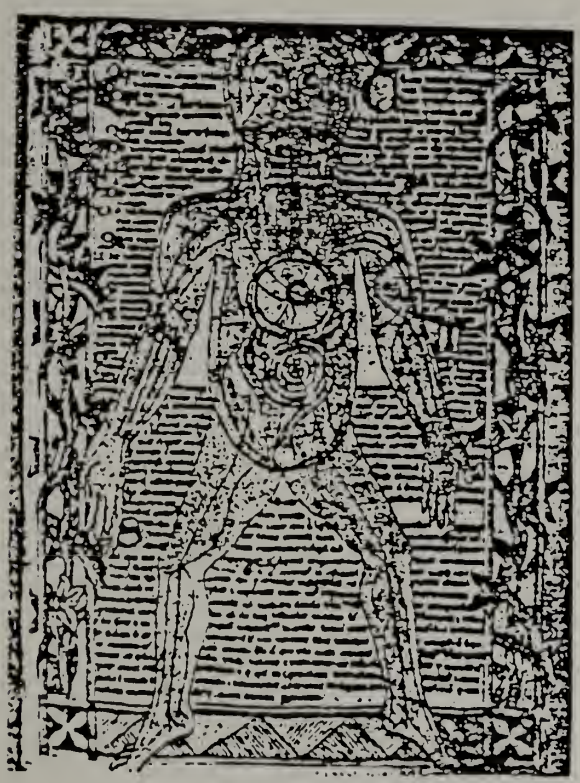
There were many different Sufi groups from very diverse areas -- Persian and Moroccan, Moorish and Indian, Mongolian, Egyptian and Turkish, with all the attendant regional and even spiritual differences. Many Sufi mystic groups remain today, still practicing their classical disciplines of spiritual evolution. Conventional Islam has often suppressed and persecuted the Sufis. Yet even today their brotherhoods still remain strong. In some Sufi groups the symbolic ideal of spiritual transformation is not only the prophet Muhammed but also Jesus Christ, for in following the path of Jesus we have the choice of realizing our true natures as the children of God. Regretably, conventional European Christianity not only wiped out almost all references to the great transmission from "heathen" Islam it also effectively wiped out, in the name of heresy, almost all groups of Christian mystics, including the gnostics and the nestorians. Ironically, those Christian monks who kept alive the Graeco-Hellenistic learning and passed it on to Islam and thus to Christian Europe, were themselves nestorian Christians, mystics and heretics expelled from Byzantium. Our Judeo-Christian-Islamic culture is rather fortunate that some of those heretical mystics survived, and had a high appreciation of learning, medicine and the arts of psycho-physical spiritual transformation. Their views are in essence similar to the classical interpretations of other great religions with their experiential practices and holistic view of the universe. The works of many prominent Christians, such as St. John of the Cross, St. Theresa of Avila, and St. Francis of Assisi, as well as what remains of the writings of the gnostics,[29] the desert hesychasts, the nestorians, the other groups are

suffused with Christian experiential practices and holistic paradigms.

Thus Sufi groups possessed the tools of meditation, movement and medicine for psycho-physical transformation, and they still cultivate their spiritual paths with such tools. We have only to look to the famous "whirling dervishes" of Konya, Turkey, spritual descendents of the Persian mystical poet Rumi. There are many other examples, including one Sufi system which calls on its followers to realize within themselves the qualities of the seven prophets "of they being." Although most of the evidence and sources have been suppressed by conventional Christianity, M. Lionel is undoubtedly correct when he delineates the history of the use of psycho-physical exercises in Europe, beginning with the knights templar and the masonic and hermetic guilds. European alchemy, rife with allegorical examples of spiritual transformation has kept alive the memory of the rich history of classical Christian mysticism, with its own highly developed practices of psycho-physical transformation. In the future, we may witness a return to prominence of mystical, holistic and even tolerant interpretations of the three major western religions -- Judaism, Christianity and Islam -- and their own unique quests for spiritual wisdom.

# THE GRAECO-ARABIC TRANSMISSION

Left: Searing with a hot iron, or cauterizing, was used to treat both internal and external complaints. Taught by the Arabs, it became popular in the West when the knife was forbidden. Here the stomach is cauterized.



A 13th-century English manuscript showing some of the Greek physician Galen's ideas of how the internal organs worked. Despite gross errors in his observations, most of his theories were unchallenged until 1,500 years after his death when the English physician William Harvey calculated that the heart must act as a pump, recycling the same blood over and over again—a fact which the Chinese had established some 1,000 years earlier.

From The Human Body: The Heart. U.S. News Books. 1931.

Fig. 16. An Arab type of moxibustion and pressure points. Galen's view of the working of the organs.

## INDIA

In India, all thought and philosophy are essentially religious. Hinduism has both influenced and determined India's intellectual, social and cultural life for thousands of years. India, that former burden of the British empire, is so remarkably diverse that different parts of India are much farther apart in culture, tradition, and language than are the countries of Europe. What distinguishes India from the practical, social nature of Chinese thought is the metaphysical, mythological, speculative, philosophical nature of its religious tradition, which seems interwoven throughout all of Indian life. The complex Indian culture is interwoven with a diverse and equally complex socio-religious pattern, which in its entirety comprises Hinduism. It ranges from the most broad and profound spiritual speculation to the most childlike of rituals and stories.

### Spiritual foundations.

Hinduism's spiritual source lies in the Vedas, a mammoth collection of writings and wisdom from the ancient seers. They cover sacred hymns, prayers, sacrificial rituals and elaborate philosophy from the oldest book, the Rig Veda, to the latest, the Upanishads. The language itself is Sanskrit, a spiritual language with a remarkable mythological and philosophical structure and content. Hinduism is marked by an almost countless profusion of gods and goddesses. One finds them in the great epics through which the mass of the people were instructed. The Mahabharata, the most well known of these epics, contains the popular spiritual poem, the Bhagavad Gita. The god Krishna is disguised as the charioteer for the warrior Arjuna, who is

about to do battle with his own kinsmen. As the battle field fades, Krishna shows Arjuna that the actual battle is the spiritual battle, the warrior's battle for enlightenment. In his instruction to Arjuna, he shows that the multitude of things and events are but manifestations of the same ultimate reality. This point of view unifies the worship of numerous gods and goddesses into an essentially monistic character. As Krishna says:

> Kill therefore with the sword of wisdom the doubt born of ignorance that lies in thy heart. Be one in self-harmony, in Yoga, and arise, great warrior, arise.[30]

Thus, the gods and goddesses are but reflections of that "beginningless, supreme, beyond what is and what is not[31] . . . .Incomprehensible is that supreme soul, unlimited, unborn, not to be reasoned about, unthinkable."[32]

As Krishna points out, the individual and the ultimate reality are inseparably one. This message is the essence of the Upanishads:

> That which is the finest essence - this whole world has that as its soul. That is Reality. That is Atman. Thou art that.[33]

In brief, we have the view of the world as "lila" -- the play of god, the world as the stage of a divine play. And like a play with its own illusory magic, so has the world this magic, illusory quality -- "maya." Maya, the impermanent, illusory, ever-changing magic nature of the world that we view as solid and ultimately real. We come under the spell of maya, and our points of view, our concepts mask us from the true nature of reality. Then we are subject to "karma," "the force of creation, wherefrom all things have their life."[34] For us, karma has acquired a psychological sense through which we are bound on this human level by the force of our concepts, our thoughts, our actions, our environment, and thus constantly revolving under the spell of maya. We are prevented from attaining "moksha" that

liberation which is the very essence of the path, that sees all phenomena as part of the same reality, that realizes all our experience, including ourselves, as that ultimate reality. As Krishna said, the way to moksha lies in the yoga of the warrior, who through continual practice eventually cuts through the bonds of maya and karma with the sword of wisdom and finds the true nature joined in union with what is.

Yoga and Ayurvedic medicine.

Yoga, of which there are many different types and schools, and many different methods, ranging from still contemplation to movement to action in ordinary life, usually involves some form of basic physical training and discipline. Since the mind and body are not separate, one trains and disciplines them at the same time. The intent and execution of the many different styles of Indian yoga is quite different from that seen on early morning television in America. However, like the Chinese exercises which so beautifully express its culture, yoga itself is seen at the least as self healing, as yoga is an integral feature of Ayurvedic medicine, that extensive, holistic medical tradition of ancient India. Ayur means "life" and veda means "science" so Ayurveda means the "Science of Life." The tradition has been practiced without interruption for several thousand years, and was codified in its present form prior to 500 B.C. by Charaka, Shushruta, and Vag Bhata. Textbooks written by these authors are still used in schools of traditional medicine throughout India today. Many schools of therapy ranging from herbal medicine to physical therapy and massage, surgery, psychiatry, the use of meditation, mantra and many other treatment modalities have predominated during different periods of

Ayurveda's long history. The conceptual scheme and the physicians' practice were expanded to include such modalities. As Dr. Rudolf Ballantine, M.D., puts it in his section on "Ayurveda Nutrition" in Diet and Nutrition: A Holistic Approach, "as a result, the school of Ayurveda has a breadth and depth that could be unparalleled in the history of medical science."[35]

The heart of Ayurvedic medicine comes from the conceptual framework of the concept of tridosha. Tridosha, the system of three 'doshas', is a system of conceptualizing mind, body, and their interaction in dynamic terms that cut across the usual categories of western thought. As Ballentine describes it, these doshas are "dynamic factors or vectors whose interaction produces that complex known as the psychosomatic entity or person."[36] The doshas are vatta, pitta, and kapha. Kapha signifies that which is heavy, dense, gross, sluggish, coarse and tending toward the material; pitta is that which is hot, energetic, assertive, capable of doing work and having the property of fire; vatta is that which is least tangible, least perceptible, most subtle, most active, erratic and unpredictable. Vatta is often translated as "wind," yet it is the wind we cannot see, moving in very subtle, erratic and powerful ways, which has the power, as Ballentine puts it, to generate electricity, move ships or destroy cities. The normal home of pitta, most often translated as fire, is the "solar plexus." According to the "specific dynamic action of a food theory," as outlined by Dr. Ballantine in his chapter on Ayurvedic medicine,[27] a significant amount of energy is produced through the digestion and assimilation of foods. The home of warmth and energy as well as the ability to act in the world is also the primary site of the organs of digestion. Kapha is often difficult to

translate, but its meaning most closely approximates material, earth, water, etc. In each case, it must be remembered that these terms refer specifically to but one aspect of a psycho-physiological system, a total psychosomatic complex. In the medical sense, westerners often translate kapha as mucus, pitta as bile, and vatta as intestinal gas, a most limiting, distorting and disturbing translation. Such a literal, limited interpretation distorts our whole view of a vast and complex system of interactions. It also reminds us of our present view of the "humors" of Greek and medieval European medicine. For Ayurvedic medicine is also the great grandfather of European medicine, and our literal interpretation of "bile," 'wind' and "phlegm" has left us unable to understand the meaning behind the translation of similar Indian concepts. With these sorts of translations and assumptions, we cannot even understand our own concepts. Ballentine tries to overcome this conceptual prejudice by likening the tridosha approach to a process of computerized factor analysis for the benefit of those whose context is solely western science and medicine.[38]

Tridosha can perhaps be most aptly understood in the context of western science if its derivation is likened to that process of factor analysis. The ancient physicians worked primarily on the basis of empirical evidence gathered through self-scrutiny, careful clinical experience and keen observation. They tried to analyze the multiplicity of psychological, emotional, mental, spiritual and physical phenomena into manageable terms. Here we see that their efforts amounted to something quite similar to what a computer does to a pile of data when it carries out a factor analysis. The reduction of the multiple variables into functionally-grouped categories not

only brings order out of chaos, but brings an order which is most meaningful and revealing of the basic nature of the system being studied. This "factor analysis" carried out by the traditional physicians of India apparently revealed three major functional "forces" or groupings involved in the psychosomatic system, and these were designed as the doshas (that is, three main categories as far as understanding and dealing with disease).

The ideal situation is one in which all our systems, whose aspects are characterized by these three doshas, are in harmony. Balance is the key word. For Ayurvedic medicine, nutrition and exercise are two very important integrated ways to balance all aspects of this complex psycho-physiological, psychosomatic system which each of us is. Modern western technological developments may enable us to understand this system, for our computer systems give us one way of understanding the Ayurvedic approach, and our electrical wiring systems gives us another way of understanding the acupuncture approach of Chinese traditional medicine.

Over thousands of years, the voidyas or Ayurvedic physicians, developed an extremely rich science of herbology and pharmacology. As Dr. Ballantine points out:

> "Long before we discovered their use in the west, traditional Indian physicians were using such preparations as reserpine to lower blood pressure and calm nerves, cardiace glycosides similar to digitalis to regulate the rhythm of the heart; and fungal preparations similar to penicillin as antibiotics. Their practice of surgery is astonishingly advanced for the time, and as early as 1200 years ago, there are accounts of succesful plastic surgery such as the replacement of ears and noses that had been severed in battle. Moreover, even in ancient times, the treatment of mental illness was advanced, and the treatment of physical disorders often involved definite mental, psychotherapeutic and meditative techniques."[39]

Ayurveda provides one of the most comprehensive schemata for understanding psychosomatic interaction, and further admits no distinction between mind and body. Ayurvedic medicine, like Chinese medicine, is particularly powerful. In Holistic Medicine, Kenneth Pelletier finds exercise and nutrition to be the two most confusing and complex subjects in conventional western medicine. As he puts it, "As with nutrition, exercise is an area that has been abdicated by traditional (modern western) medicine. . . and relegated to the realms of quasi-superstitious ritual."[40] Yet in Ayurveda, the science of nutrition is vast and comprehensive. The science of food and diet is one of the oldest and most time tested approaches and is an integral part of a philosophy of man, his consciousness, and his relation to the universe. Ballentine considers it:

> "an approach to diet that is unsurpassed both in its profundity and sophistication as well as in its practicality and simplicity. Hence the selection and treatment of food is seen as unseparable from the treatment of disease and the cultivation of vibrant Health."[28]

For exercise, Ayurveda offers the highly developed sciences of yoga. Different yogic postures and sequences are prescribed, along with herbs, diets, specially prepared pills, meditations, and rituals. Although quite different from the Chinese system, or from the American zone therapy system, Ayurvedic yoga is quite similar in execution and approach. The body is again composed of dynamic centers of energy, the chakras, which work in harmony with themselves and other centers through a central internal channel and a series of subsidiary channels.[42] Self-healing is an integral aspect of all yoga systems. Yoga itself is prescribed for self healing in traditional Ayurvedic medicine.

Yogic postures and energy.

In one system these yogic postures are seen as postures of the gods, which allow one to develop archetypical qualities. From other systems they are seen as developing the glands and secretions, the psycho-physical channels necessary for the realization of spiritual attainment. The vedantic school emphasizes daily meditation and other spiritual/physical exercises to bring about this union with the divine. It has passed this practical method down through 35 centuries of teacher-student relationship. In the 7th and 8th centuries A.D. the vedantic system was codified by the philosopher sages Govindo-pada, Gauda-pada, and Shan Karacharya. One school of this tradition is illuminated in two major texts the Saundaryalahari and the famous Yoga-Sutras of Patanjali. Here humans are seen as not just a mechanical, physical form with mind and body separate, but an interconnected force-field of conscious energy (chit-shakti). We are each a coil of the "serpent of eternity," kundalini, around which the human body and personality arrange themselves much as the sprinkling of iron filings arranges itself along the lines of a magnetic field. The yogic postures, exercises, visualizations, and other meditation techniques are taught in order to awaken this sleeping energy of consciousness so that the individual awareness becomes one with the ultimate reality. Patanjali not only discusses the continuous stream of thought waves which flow through the mind/body, but also offers one definition of yoga as the control of the thought waves of the mind. For many Hindus, the normal pattern was to be a householder, although performing rituals and yoga, until old age. Once one's social duties were fulfilled, one then could become a yogi and strive

for oneness with what is.

Yogic dance.

As many Hindus learned the nature of the universe through dance and story telling, there was also a special form of ritualized movement, of dance yoga itself. In one version, katak, the relatively static postures of the gods become the dance of the gods. The outer storytelling and movement describe and contain an inner movement of energy, an internal yoga, much as Krishna's instructions to Arjuna were the instruction of that inner war, the struggle for enlightenment.

> Taking as a bow the great weapon of the Upanishad, One should put upon it an arrow sharpened by meditation. Stretching it with thought directed to the essence of that, Penetrate that imperishable as the mark, my friend.[43]

The dance yoga of katak is called the martial art of the gods. It paves the way for realizing all of creation, all of its myriad interplay of constant creation and destruction, as the dance of Shiva.

The dance of Shiva, like the yin-yang symbol, is a most appealing image to the western mind. For Shiva is reality itself, as well as the patron of many forms of yoga, including the mystical medieval sexual yoga -tantra. Shiva is often depicted in explicit, spiritual, sexual embrace with the consort Shakti, representing the ultimate union within ourselves, our lives and our practice of the dual masculine and feminine natures of the play of energy in the universe. From this source came the extraordinarily beautiful Shiva Sutras, the Indian equivalent of the mystical Tao Te Ching. Above all, these Shiva Sutras are a guide to the ultimate realization of the internal and external practices of various yogas.

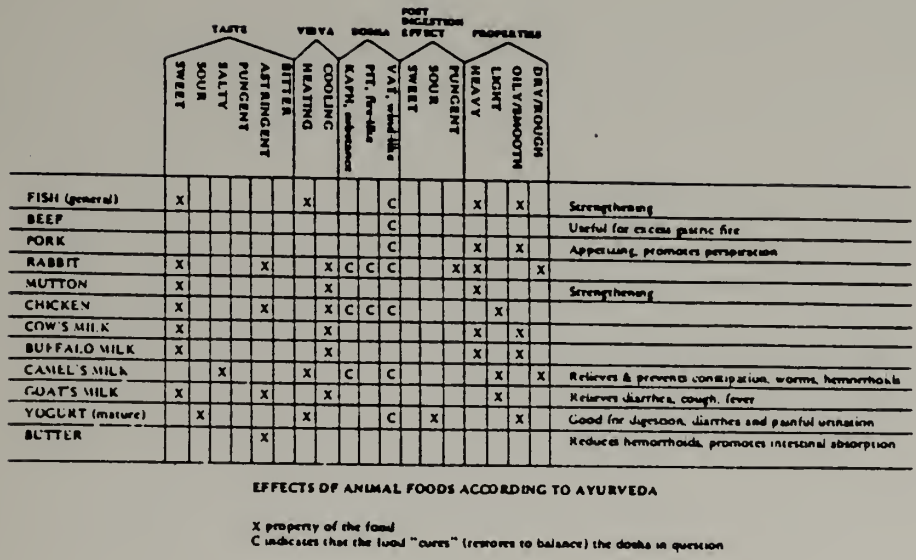
Summary.

We see the role of yoga, in both the education and realization of the Indian awareness of reality. Not only is it self healing, not only does it give one a certain measure of control, and thus responsbility over one's inner processes, not only does it integrate one's masculine and feminine natures as well as different levels of organization in the body, but it also is a direct path, through both participation and perception, to self awareness. This direct path to the mystical experience of reality is the aim of Indian religious culture. As such, yoga, this form of psycho-physical cultivation, is a central facet of both Indian education and culture itself.

# THE BODY/MIND CONTINUUM:
# AN INDIAN PERSPECTIVE

Fig. 17.

'Tridosha', the conceptual framework which forms the heart of Ayurvedic medicinal science and the great-grandfather of most of European medicine. From Diet and Nutrition, A Holistic Approach, Rudolph Ballentine, M.D., 1978.




EFFECTS OF ANIMAL FOODS ACCORDING TO AYURVEDA

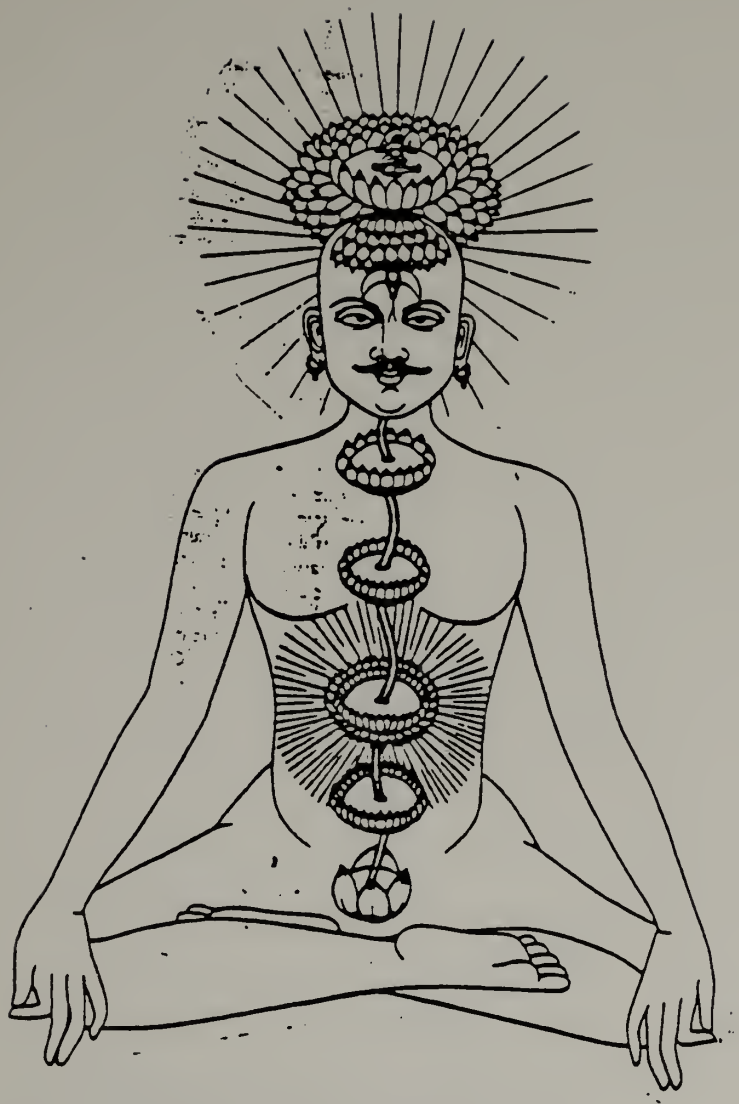
X property of the food
C indicates that the food "cures" (restores to balance) the dosha in question

From Diet and Nutrition, a Holistic Approach, Rudolph Ballentine, M.D., 1978.

Fig. 18. Ayurvedic medicine: effects of animal food on the doshas.

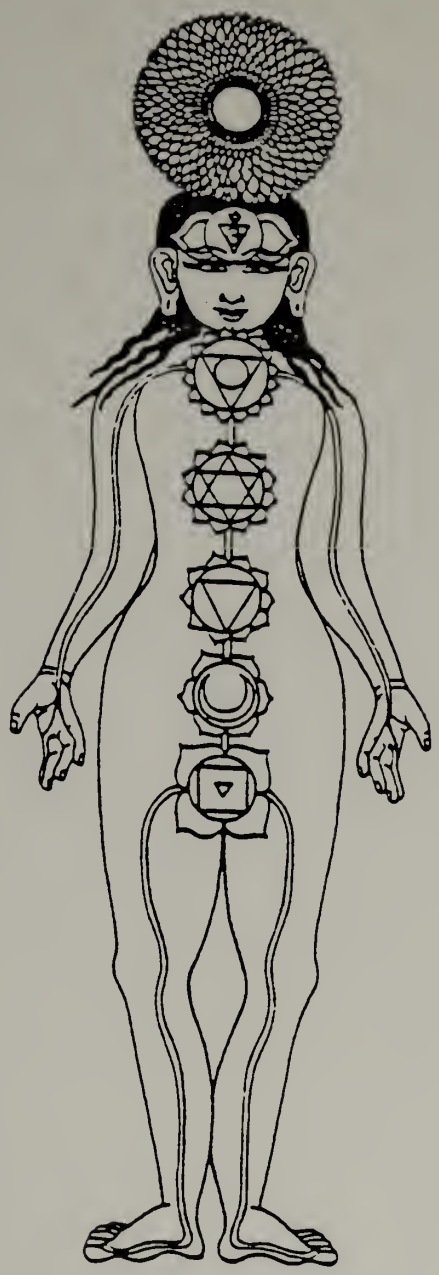
From Tibetan Medicine translated by
the Ven. Rechung Rinpoche.

Fig. 19. Indian internal yoga: Brahma, Vishnu, and Shiva.



From Tibetan Medicine translated by the Ven. Rechung Rinpoche

Fig. 20. Indian internal yoga: kundalini



From Tibetan Medicine translated by the Ven. Rechung Rinpoche

Fig. 21. Indian internal yoga: the subtle body.

Shiva Nataraja, Brahmanical bronze,
South India, twelfth century.

The Dance of Shiva symbolizes not only the cosmic cycles of creation and destruction, but also the daily rhythm of birth and death which is seen in Indian mysticism as the basis of all existence. From The Tao of Physics, Fritjof Capra, 1975.

Fig. 22.

## JAPAN

### The warrior motif.

Krishna's yogic image of the spiritual warrior is reminiscent not only of Mohammed's invocation of the Greater Jihad as the inner spiritual war of mankind itself, not only of the Yaqui Indian Don Juan's teachings of the way of the warrior, but is also a motif for a concept central to another culture: Japan. Bushido, the way of the warrior, the way of the sword, is a central feature of the samurai training of Japan. In bushido, where the spiritual training of the warrior is carried to its ultimate, one's mind rests in the tip of the sword. Here the warrior's mind develops total alertness and the swordsman's spiritual sight reaches its highest perfection.

### Zen and the samurai class.

As the zen master Yosutani Roshi describes shikan-taza, the practice of zen meditation:

> Shikan-taza is a heightened state of concentrated awareness wherein one is neither tense nor hurried, and certainly never slack. It is the mind of somebody facing death. Let us imagine that you are engaged in a duel of swordsmanship of the kind that used to take place in ancient Japan. As you face your opponent you are increasingly watchful, set, ready. Were you to relax your vigilance even momentarily, you would be cut down instantly. A crowd gathers to see the fight. Since you are not blind you see them from the corner of your eye, and since you are not deaf you hear them. But not for an instant is your mind captured by these sense impressions.[44]

We forget sometimes that zen was the major spiritual practice of the samurai class. The samurai constantly practiced various martial arts both as a means to excellence and as a means to enlightenment. Zen, with its

freedom from all forced beliefs, has a technique of direct pointing, a special transmission outside the scriptures.

> Not founded upon words and letters,
> Pointing directly to the human mind,
> Seeing into one's nature and attaining Buddhahood.[45]

Zen, with its advocacy of everyday mind, "When hungry eat, when tired, sleep." How wondrous, how mysterious. "I cut wood, I draw water." Its quiet settings and ordinary work in the world, its spontaneity, simplicity and total presence of mind is a uniquely Japanese expression of Indian Buddhism, tempered by Chinese Taoism and Chan Buddhist meditation.

The Japanese have only been in Japan for some 2000 - 2500 years. They have their own culture, but have also imported much of their cultural veneer from China. Originally, the Japanese drove out the Ainu peoples who still inhabit the northern reaches of Hokaido. (Perhaps we could learn much about movement and physical cultivation from peoples such as the Ainu or the aborigines of Australia and the Indians of North America, where some tribes have an art of spiritual running. We have failed to look at our own past, our own history, as well as failed to look at other cultures and histories. And we have failed to look at the remnants of cultures around us for the valuable lessons they could impart to us of this interconnected web of being.) So zen is a uniquely Japanese hybrid and manifestation of other roots and seeds.

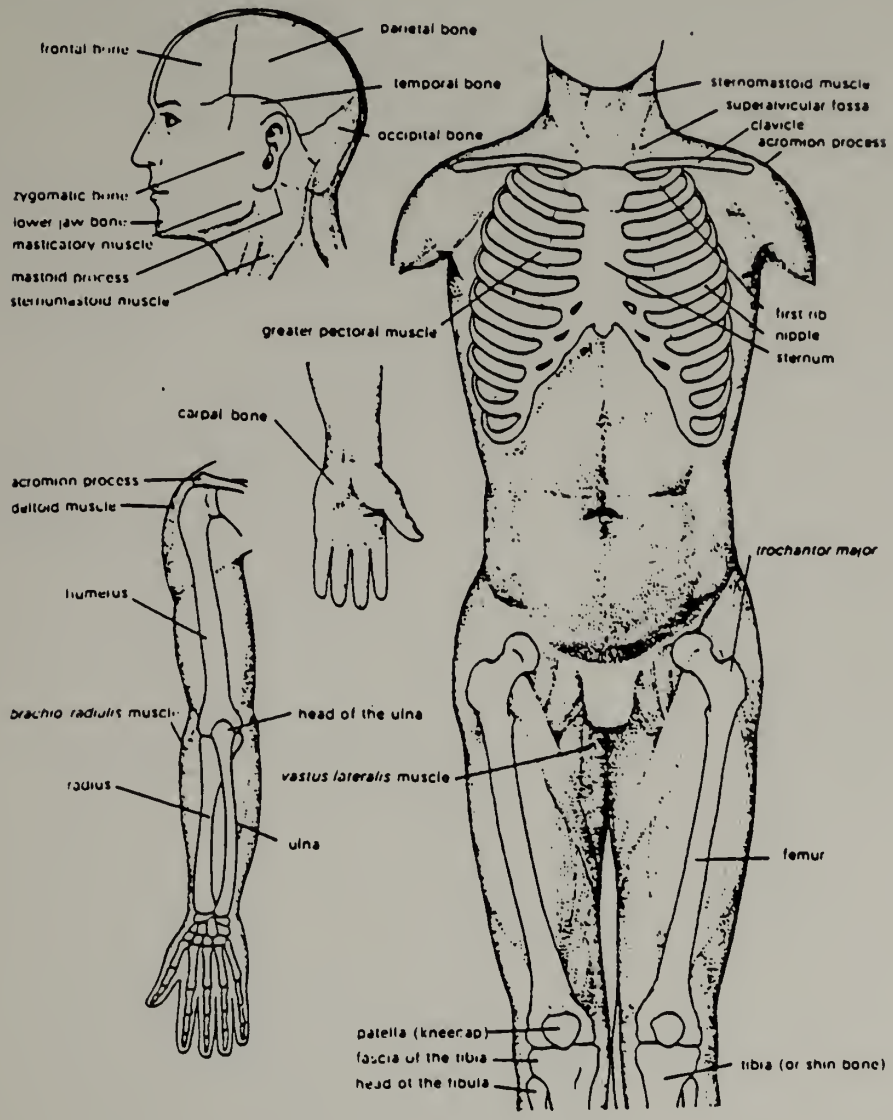
In the tea ceremony, in calligraphy, and in the ritualized movements of the "no" drama we have other examples of the Japanese mind. We find this mind also in the haiku poems and their "training of the mind" derivatives, the koans or paradoxes of zen education. We will return to

Japanese culture later when we consider a very recent addition to the way of the warrior and the spiritual art of physical cultivation.

# THE BODY/MIND CONTINUUM:
# A JAPANESE PERSPECTIVE

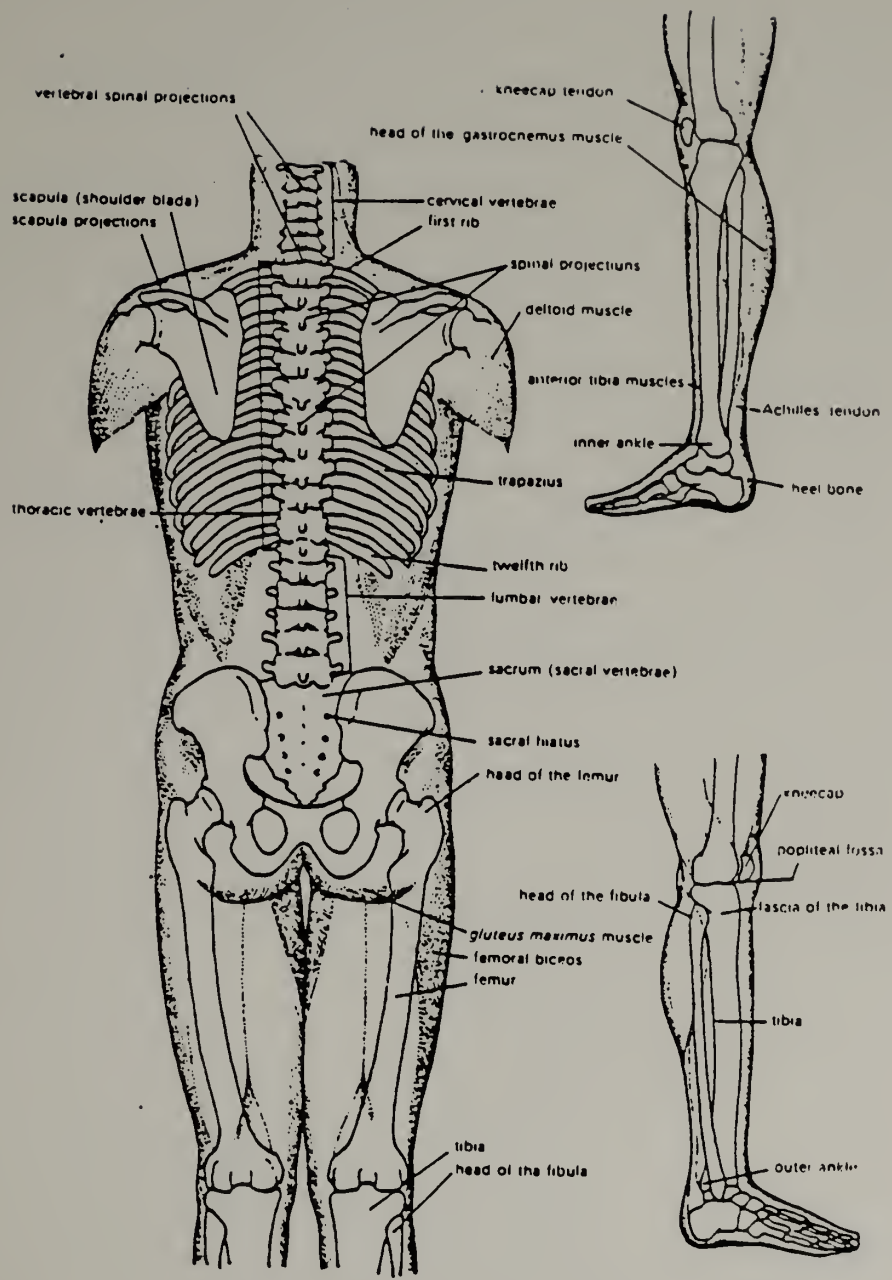
## Bones and Muscles Important in Tsubo Therapy

The following charts show the locations of the major bones and muscles mentioned in the explanations of how to find the tsubo.




From Tsubo: Vital Points for Oriental Therapy, Katsusuke Serizawa, 1976.

Fig. 23. Bones and muscles important in Tsubo therapy (anterior).




From Tsubo: Vital Points for Oriental Therapy, Katsusuke Serizawa, 1976.

Fig. 24. Bones and muscles important in Tsubo therapy (posterior).

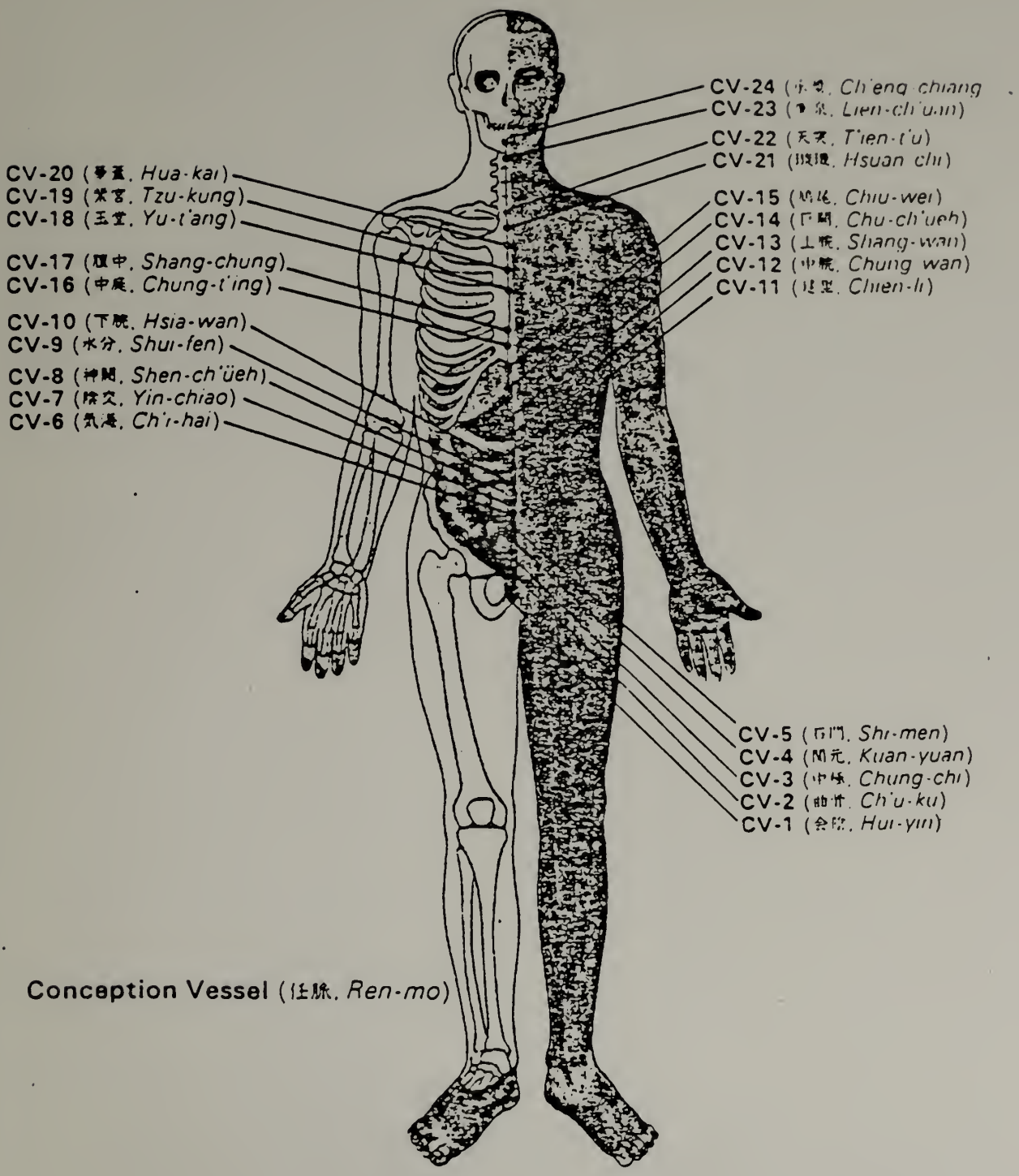



Fig. 25.

From Tsubo: Vital Points for Oriental Therapy, Katsusuke Serizawa, 1976.

## TIBET

Let us turn now to two societies whose leit-motif was complete spiritual realization -- the cultures of Tibet and Burma. Tibet, the land of snow, resting in the plateaus and valleys and peaks of the high Himalayas, is a country radically different from India and China. Its own indigenous culture has been deeply influenced by these two giants, as well as by the rich, deep Muslim culture to the west and the conquering, warlike Mongol culture to the north. But its isolation, and the unique frame of mind of its inhabitants, has led to quite a different manifestation of these cultural influences. Its religion is a mixture of the metaphysical, mythological, incredibly detailed tapestry of Indian Tantric Buddhism, with its profusion of meditational deities, philosophical speculation and spiritual practices, and the stark, simple, spontaneous Chan Buddhism of China grafted over an indigenous Bon-po religion, which already contained elements of both. (These two approaches even appear in Christianity, with the richly detailed religion of the medieval church as seen at Chartres, and the stark, simple presentation derived from the reformation and the Lutheran, Baptist, Presbyterian and other Protestant denominations.) A distinct religious manifestation arose in Tibet, which was an expression of a Buddhist vajrayana point of view that permeated all of Tibetan culture.

### Tibetan medicine.

In medicine,[46] there is a similar eclectic approach which includes the Ayurvedic system of India, with its forms of yoga and meditation, in a group marriage with the Chinese systems of yin-yang harmony, of five element

balance, of acupuncture and movement; with the Tantric Buddhist system of visualization, mantra, meditation, mental and physical discipline, internal channels, and ritual; with the Bon-po system of indigenous herbs, magic rituals and surgery; and with the alchemical Muslim medicine of homeopathic medicines based on pills made from gold, herbs and precious minerals.[47]

According to Tibetan spiritual history, the foundations of Tibetan healing are believed to have been orally transmitted from the Buddha in the medical canon known as the Four Roots, from which ancient physicians evolved their art, and a storehouse of medical texts dating back to the 8th century A.D. Tibetan medicine takes a karmic view of the origins of disease, making a definite connection with former actions either in a past lifetime or earlier in this life. The "three poisons" which bring disease are delusion, hate and greed. These poisons manifest as three main causes of illness: winds, phlegms and biles. While this might seem at once too cosmic and too simplistic a view to the western mind, these causes are actually a condensation from the 84,000 afflictions or diseases identified in the medical scriptures. In effect, Tibetan medicine, like Ayurvedic medicine, can be explained to westerners by using the factor analysis analogy.

Three different forms of analysis are used in medical diagnosis: vessels, urine, and observation and questioning. The vessels are read through a complex form of pulse diagnosis which takes years to study and master. The doctor uses three fingers, index, middle and ring, to gain information about various organs and imbalances. Urine is analysed for color, odor, foam and sediment. The doctor also observes the patient's

coloration and asks pertinent questions.

Treatments prescribed according to the disease include golden needle acupuncture (which originated in Tibet), moxabustion (burning aromatic species of plants over the surface of the skin at precisely designated points), massage, cupping, special heat treatments, diet, cauterization, lancing, emetics and laxatives. Medical treatment also includes an apothecary of thousands of medicines concocted from a variety of substances: metallic and organic drugs, mineral medicines, medical stones, trees, oils, distillations from medicinal fruit and flowers, vegetable medicines such as leaves of plants, and animal medicines. An essential part of a young doctor's apprenticeship was learning to identify ingredients during gathering expeditions in the Himalayan mountains for gemstones, wildflowers, ginseng, gold and silver, Himalayan musk, deer and rhinoceros horn and many other substances. According to Dr. Lobsong Dolma, medicines derived from these sources are helpful in cases of migraine, arthritis, epilepsy, diabetes, cancer, hepatitus, cataracts, liver complaints, and bites. The Tibetans had 1000 years of documented case studies which showed the effects of their treatments.

Surgery was popular with Tibetan physicians and practiced very widely during the ninth and tenth centuries, but was later largely abandoned. Though the practice has continued, Tibetan physicians lay greater stress on treatment and cure by natural means, and on prevention by developing the powers of the mind. Even in the case of cancer, surgery is generally not undertaken. Cancer is treated with oral medicines and the application of salves. The view expounded in Tibetan medical texts has lately found

confirmation in western medicine: that the precipitating cause of cancer is a virus and there exists a "cancerous disposition" prone to stress and anxiety which accelerates the disease.[48]

Compassion is the keystone of Buddhist philosophy and the motivating attitude of the Tibetan physician who is educated in religious studies as well as medicine. Emphasis is placed on the mental disposition as it influences to a vast degree the bodily functions, stresses and strains. The doctor's concern is to relieve physical suffering by alleviating ailments and restoring imbalances to equilibrium. The doctor's background in Buddhist psychology and philosophy provides methods of cultivating total well being. Ultimately, health is viewed as the proper relationship between a person and his/her total environment, the universe. Disease is a disruption of this relationship. The pacification of illness by meditation and tantric ritual, including visualization and the recitation of mantras, indicates the larger mystic context of Tibetan healing.

Tibetan society.

Tibet was a theocracy, a society explicitly organized and permeated through and through by religion, Tibetan Tantric Buddhism. A good percentage of the male population spent all or part of their life in large monasteries. Women needed the possibility of numerous husbands, for men might "get thee to a convent" at a moment's notice. Thus it was culturally and socially acceptable for Tibetan women to have four husbands. The economic and social system was not only religious, but also feudal, with its own systems of government. Sometimes these were synonymous with the monasteries, their rulers in effect being also lords, and sometimes they were

secular and in competition or cooperation with various monasteries. Even the secular ruler of Tibet, the Dalai Lama, the god-king, was a religious leader of the dominant sect. Almost all of Tibetan society practiced continually this spiritual path, from the simplest of farmers and peasants repeating "om mani padme hung", to the most highly cultured and exquisitely trained lamas with their tantras and pujas, to the wild mountain yogis with their whole life an expression of this realization. These wild mountain yogis, such as the great Tibetan saint and culture hero, Milarepa, became a living manifestation of this "crazy wisdom."

The mind of Tibet.

However, the mind of Tibet, the cauldron through which these myriad influences became raw material to be tempered, was quite distinct in itself. As Indian and Chinese Buddhist influences had one effect in Japan, so they became the fertilizer for another type of flowering in Tibet. At one time, the Tibetans were the most renowned surgeons of the east. Before the advent of Buddhism, there existed a strong scientific bent to the Tibetan mind, marked by some of the same sort of methods of scientific thought and experimentation as we find in our own western culture. This mind was also very concrete, possessing a solidity and clarity and earthiness one frequently finds among people who live in high mountains. Indeed, the view from such mountains has this effect on the mind, the clarity of the air and light, the concrete solidity of the mountains themselves, and the vast panoramas that unfold both above and below. It is a perspective ideal for making maps. The Tibetans made the most extraordinary maps of human consciousness that we know of on the earth today. In fact, for the last one thousand years, this

clear, concrete, vast frame of mind has devoted itself to the scientific pursuit of mapping out human consciousness, human psychology, human experience itself. The laboratory has been the vast, isolated, frigid, sparsely populated land of the snows, with its interminable arctic winters, ideal for such an inner operation. Although sometimes their works begin to appear as the Russian novels of the psyche, their entire culture has pursued, recorded, debated and manifested this spiritual pursuit. Their maps of consciousness, and their models of the varied paths of attainment, are so extensive that different combinations of practice and method can be derived for whatever types of individuals wish to pursue this approach.

However, much of their experience can be transmitted by one symbol, the double dorje, the crossed vajra, an adamantine, indestructible thunderbolt. Like the cross in Christian practice, the yin-yang symbol in China, and the tridosha in India, the double dorje symbolized Tibetan spiritual realization and cultural perspective. Not only is it the symbol of the unity of masculine and feminine elements in oneself and in the universe, the energy and power of skillful, compassionate means and intuitive, mystical wisdom, it is also the symbol of the unified view of the entire universe with its myriad levels or realms or worlds, each with "four corners and ten directions." The simultaneous awareness of all these physical and psychic realms could be achieved through proper practice. Indeed, these interlocking realms, with different rules and laws and experiences for each one, exist within oneself. In the center of the double dorje lies a three way yin-yang type symbol, a Tibetan tridosha. This is a symbol of the dynamic elements of life itself --the temporary blending of male elements, female

elements and consciousness, which come together constantly to form that one point, human life itself, through which we can then realize our own true nature and the true nature of the universe itself. As the Buddhist Heart Sutra implies, not to be separate from what is the true mystic state beyond union, beyond oneness, beyond the Dharma kaya, the "Body of Being."

> Gate, gate, paragate, parasomgate bodi svah
> Gone, Gone Gone Beyond.

As can be seen, this view of the world is quite difficult to express in any language -- it is often termed the unexpressable -- much less in abstract, rational English. It is fraught with the possibility, already present in many western translations, of laughably inept expressions -- "why it's just nihilistic." Tibetans get a huge laugh out of this interpretation, for they view the universe as a huge, rich, diverse banquet, and not as a barren fast.

Education.

The explicit aim of Tibetan education was the realization of this vast, encompassing awareness. The education varied, from practical training in agriculture and crafts and other economic necessities to the extensive cultivation given since early childhood to those destined to be lamas, or high mothers -- priests. Their extensive training was in the interlocking disciplines of religion -- metaphysics, philosophy, medicine, art, dance, psychology, debate, yoga and meditation. Art was found in the complex and baffling metallurgy needed to form the alloys which made their exquisitely sounding bells, as well as in the mathematically precise spiritual proportions of the tankas, the mandalas of the mind, the artistic representation of

varied psychophysical states, and the maps of how to attain them.

Their mandalas, medicine and meditations were all based on the five Buddha wisdoms, a delineation, different from the Chinese model, of the five basic poisons of human nature from which all disturbed patterns can be transmuted into the five Buddha wisdoms. Their architecture, their stupas, reflected this expression of the Tantric Buddhist view of the organization of the universe and of the consciousness itself. The experience of Chartres is readily and intuitively available to one deeply trained in their culture.

Visualization.

One of their main methods of transformative education was visualization. Visualization was used not just with meditation but also with medicine and movement. Indeed its use permeated all aspects of Tibetan life and culture. From the western point of view, Tibetans saw matter as following mind. From their point of view, what was held in the mind had a harmonizing, balancing and transformative effect on all aspects and interactions of life itself. If the visualized personal patterns or images were in harmony with universal patterns, then they tended to balance not only the individual but all the myriad social and spiritual interrelationships of the universe. This reliance on visualization extended to healing of the mind and body. Here the inner channels and pathways, the body and its smallest cells, as well as its patterns of emotional and mental states, were all held in a transformative visualization which could induce not only healing but also the spontaneous strengthening and flow of energy which led to realization.

Visualization also played an important role in the Tibetan acupuncture system which is quite different from that of the Chinese. Tibetan

acupuncture depends on a central internal channel, located in the middle of the body in front of the spine. This channel is a central feature of their yogic meditation. All the meridians or vessels or channels, even the physical body itself, radiate from this channel. Their approach is quite different from the Chinese 'superficial' meridian approach. Much original work in healing cancer with visualization has had its impetus from contact with various Tibetans, for whom this would be the first method of approach.

Indeed, one of the byproducts of these labors was the attainment of what we in the west would see as miraculous powers. Sometimes the result was intended, as in the acquisition of the power of long-gon-pa, or "fast walking." Since the distances in Tibet were rather vast, and means of physical travel primitive, long-gon-pa became a rather commonplace art. What would be remarkable today is that these unathletic appearing monks, with their long robes and shaved heads, could probably put to shame the finest Olympic walkers and marathon runners our culture has to offer. A German, Lama Govinda, has a poignant description of such a practitioner in his autobiographical Way of the White Clouds.[49]

This power was attained not as a result of a quest for fame and money and gold medals. It was attained as a result of years of meditation practiced for the practical purpose of getting from one distant point to another rather quickly without freezing to death en route. Such mental training methods might be of some use to westerners whose bionic training, using drugs and machines and surgery, attain incrementally improved results. But it would be rather funny to see the New York marathon won in the record time of twenty-six minutes by a bald, unathletic looking oriental

wearing long flowing robes and felt boots, while carrying a mala or rosary in one hand. However, as one Tibetan lama said: "Long-gon-pa is not necessary in the west. In the west one takes the car or train or plane and turns on the heater."[50]

In fact, the Tibetans used visualization while doing physical postures and movement and even ordinary work. They would chop wood, cook, eat, make love, and do their yogic practices while holding their "energy body" and every minute cell and arrangement of that body, in some archetypal form appropriate to their individual nature. This was particularly effective during the unbelievably cold, harsh winters when it was difficult to go outside. Thus visualization was a vital element in the experience of realization of their entire educational system, including their system of internal yoga and meditation. What passed for physical cultivation in that vigorous, hearty mountain society was also a reflection of the teachings of visualization.

Kum Nye relaxation.

In America we already have two systems that appear to be hybrids, to have their roots in Tibetan culture as well as in western psychology. The kum nye relaxation[51] system comes from Tarthang Tulku, a Tibetan Lama who has lived here for 12 years. Kum nye was little known in Tibet itself. When taught it was used as a preparation for meditation or a relaxing adjunct to other practices. According to Tarthang, it is a

> "holistic system which vitalizes body, mind and senses by means of breathing, exercises, self massage, and movement. . . Kum Nye shows us how to develop the special nurturing qualities of relaxation, and how to bring this relaxation into our daily lives. . . . It is not an advanced or esoteric practice, but a simple method of opening our

> senses to inner feelings of satisfaction and fulfillment. As these feelings expand, an understanding of the unity of all experience develops, and daily life takes on a vital, balanced quality."[52]

There are also specific therapeutic exercises of visualization and breathing which need the guidance of a trained teacher. Tarthang further states that the unique value of the system is that it integrates and balances two approaches, the physical and psychological.

> "Kum Nye heals both our bodies and our minds, bringing their energies together to function calmly and smoothly. Because it leads to the integration of body and mind in all our activities, this relaxation has a vital and lasting quality greater than the feeling of well-being experienced in physical exercise, or even in disciplines such as yoga. When we learn to open our senses and touch our feelings directly, our bodies and minds make full contact with one another, and all our experience becomes richer, healthier, and more beautiful. As we become more deeply acquainted with ourselves and grow in self-understanding, we are also able to share more fully with others. Kum Nye opens our senses and our hearts."[53]

Meditational casualties.

The system of Chogyum Trungpa, a lama who has been in the west for 10 years, is derived from a Tibetan system that comes after, not as a preparation for, meditation. For meditation has its own casualties. (Indeed working with "meditation sickness", with "kundalini casualties," is one of the major features of my own practice.) In Tibet, those long, arduous retreats sometimes ended in meditation casualties, with disturbed minds and bodies, unable to function in this realm or other realms. There were many interlocking therapies for these sorts of problems. Trungpa's system[54] is derived from one of them. These sicknesses were divided into one of five major categories, based on the five Buddha types. Then the casualty was put in a room designed to exaggerate the tendencies of each type of

disturbance. Here, the casualty was placed in a basic posture, in other words frozen in place in a position which exaggerated the problem, until the trauma finally released through the contraction-relaxation principle carried out on a larger psycho-physical scale. Trungpa's system, as well as Tarthang's system, may owe as much to western models and cross-fertilization as they do to purely Tibetan ideas. For America itself has become a melting pot for spiritual as well as psychophysical disciplines. The potential for cross-fertilization that exists in this country today is great.

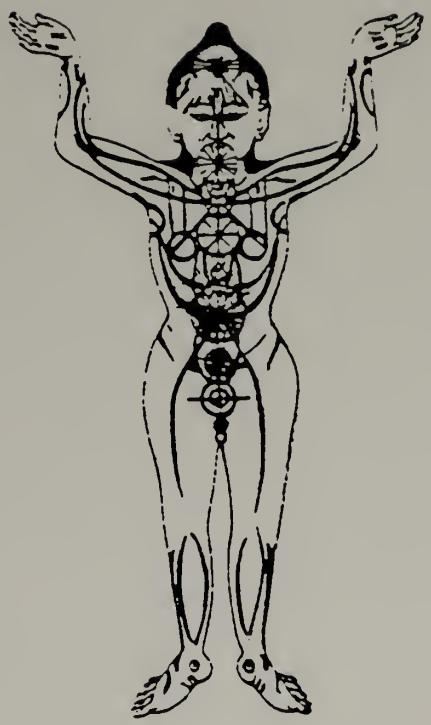
# THE BODY/MIND CONTINUUM:
# A TIBETAN PERSPECTIVE

From Tibetan Medicine translated by the Ven. Rechung Rinpoche, 1973.

Fig. 26. Double dorje (crossed vajras).

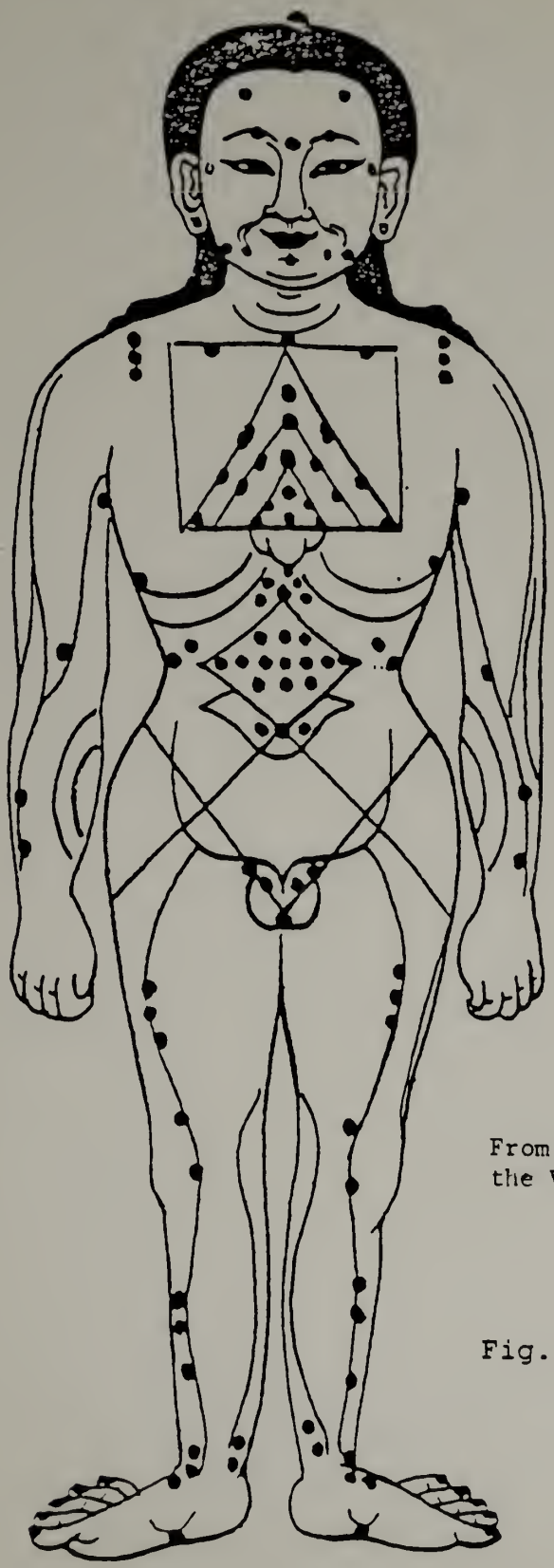
From Tibetan Medicine translated by the Ven. Rechung Rinpoche, 1973.

Fig. 27. The central channel of Tibetan medicine.



From Tibetan Medicine translated by the Ven. Rechung Rinpoche, 1973.

Fig. 28. The subtle body with its channels and chakras.



From Tibetan Medicine, trans. by the Ven. Rechung Rinpoche, 1973.

Fig. 29. Tibetan moxibustion diagram.

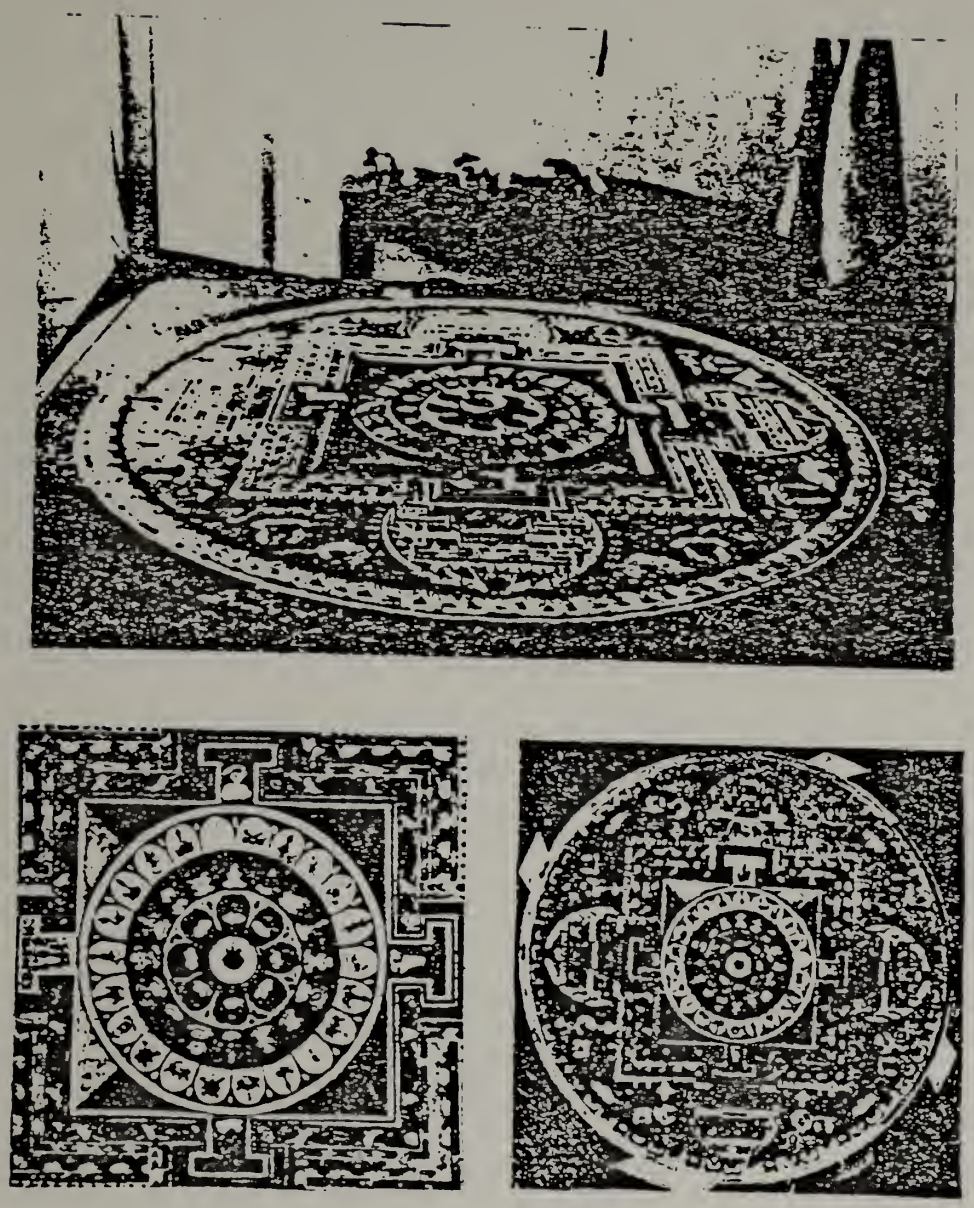


Fig. 30.

The great mandala of the Buddha of Healing, formed of colored sands for the three days of healing ceremonies. Yung-ho-kung. From The Healing Buddha, Raoul Birnbaum, 1979.

## BURMA

Finally we turn to Burma, a country with a unique Buddhist culture and tradition all its own -- the Theravaden tradition. At one time Burma was ruled by Britain and considered a part of the British Raj, a part of East India. So Burma had its own cultural mix which included distinct western influence.

### Education, insight, and direct perception.

The Burmese educational system had remnants of the British approach, of western science and humanities, as well as the Burmese Buddhist approach, including Buddhist theory, and meditation, philosophy, dialectics and education. The Burmese seldom used visualization. Instead, they used direct perception and tempered, trained awareness. Instead of the myriad postures and forms of the Tibetan system, they taught through the two most basic postures of stillness and movement, the postures of sitting and walking. And instead of trying to induce the energy to move through visualization and concentration, they trained their awareness to directly perceive directly this natural internal movement. By the direct perception and awareness of the internal stillness and movement itself, realization could be attained. Instead of a concern for the rigid postures of sitting, walking and yoga imposed on practitioners by zen or Tibetan tradition, the Burmese saw everyone as having his/her own natural posture which was individual, relaxed and slightly different in each case. Accompanying the incredibly rich and deep Buddhist intellectual tradition, (and its place in the universities alongside a British model) is the Burmese means of realizing this

tradition, the sitting and walking meditation, the training of the awareness in stillness and in movement known as "vipassana."[55]

Healing meditation.

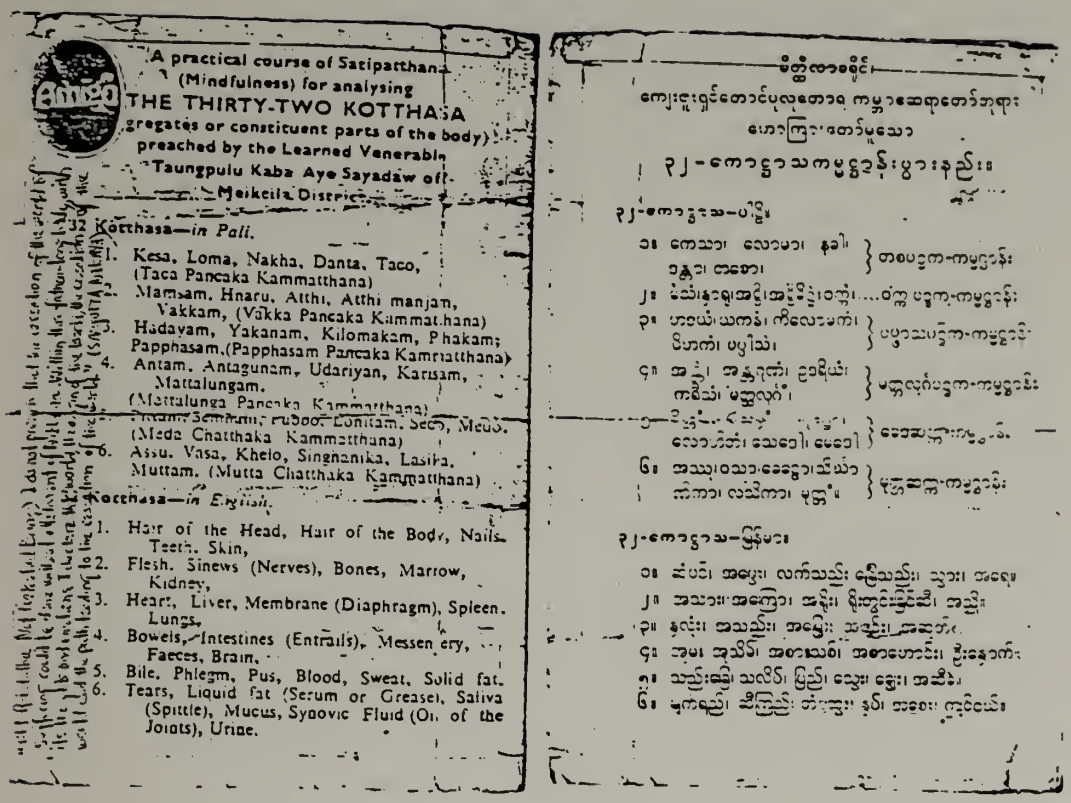
There are two predominant healing meditations in this vipassana or awareness approach. The "32 parts of the body" meditation shows both a profound similarity to and a profound difference from Buddhist anatomy and physiology and western anatomy and physiology.[56] The sweeping meditation, where one sweeps through the body's different levels, states and systems with the awareness itself, also is a powerful tool for self healing.[57] The simplicity and directness of these methods of self healing and perception make them potentially powerful models, especially for westerners.

Awareness in walking.

The processes of self-healing, healing in meditation, and enhancing one's perception in activity and in ordinary life were all strengthened by the single practice of awareness in walking, the yoga of walking.[58] Fast walking, slow walking, ritual walking -- all were done as a form of training; as an experience of the universe in outer motion and internal stillness, just as sitting was sometimes an experience of outer stillness and internal motion. In fact, a team of Israeli doctors have found that walking is the best possible form of exercise with the least possible risks for the greatest possible number of people.[59] Another team of doctors in a New York hospitals have corroborated these findings.[60] We find in much of Sufi mysticism the basic injunction "Watch your breath and watch your feet."

There is a mountain climbing Buddhist sect in Korea whose word for climbing the mountain with spiritual intent translates into the beautiful, poetic phrase: "caressing the earth with your feet." In the west, caressing the asphalt with your feet doesn't have quite the same ring.

# THE BODY/MIND CONTINUUM:
# A BURMESE PERSPECTIVE



A practical course of Satipatthana
(Mindfulness) for analysing
THE THIRTY-TWO KOTTHASA
gregates or constituent parts of the body)
preached by the Learned Venerable
Taungpulu Kaba Aye Sayadaw of
Meikeila District.

Kotthasa—*in Pali.*

1. Kesa, Loma, Nakha, Danta, Taco,
(Taca Pancaka Kammatthana)
2. Mamsam, Hnaru, Atthi, Atthi manjan,
Vakkam, (Vakka Pancaka Kammatthana)
3. Hadayam, Yakanam, Kilomakam, Phakam;
Papphasam.(Papphasam Pancaka Kammatthana)
4. Antam, Antagunam, Udariyan, Karisam,
Mattalungam.
(Mattalunga Pancaka Kammatthana)
Pittam, Semham, Rudhir, Lohitam, Seda, Medo.
(Meda Chatthaka Kammatthana)
6. Assu, Vasa, Kheto, Singhanika, Lasika,
Muttam. (Mutta Chatthaka Kammatthana)

Kotthasa—*in English.*

1. Hair of the Head, Hair of the Body, Nails,
Teeth, Skin,
2. Flesh, Sinews (Nerves), Bones, Marrow,
Kidney,
3. Heart, Liver, Membrane (Diaphragm), Spleen,
Lungs,
4. Bowels, Intestines (Entrails), Messentery,
Faeces, Brain,
5. Bile, Phlegm, Pus, Blood, Sweat, Solid fat,
6. Tears, Liquid fat (Serum or Grease), Saliva
(Spittle), Mucus, Synovic Fluid (Oil of the
Joints), Urine.

မိတ်ဆက်စာစဉ်

ကျေးဇူးရှင်တောင်ပုလုတောရ ကမ္မာဆေရာတော်ဘုရား
ဟောကြားတော်မူသော

၃၂-ကောဋ္ဌာသကမ္မဋ္ဌာန်းပွားနည်း။

၃၂-ကောဋ္ဌာသ-ပါဠိ။

၁။ ကေသာ၊ လောမာ၊ နခါ၊ ဒန္တာ၊ တစော၊ } တစပဉ္စက-ကမ္မဋ္ဌာန်း
၂။ မံသံ၊နှာရု၊အဋ္ဌိ၊အဋ္ဌိဉ္ဇံ၊ဝက္ကံ၊....ဝက်က ပဉ္စက-ကမ္မဋ္ဌာန်း
၃။ ဟဒယံ၊ယကနံ၊ ကိလောမကံ၊ ပိဟကံ၊ ပပ္ဖာသံ၊ } ပပ္ဖာသပဉ္စက-ကမ္မဋ္ဌာန်း
၄။ အန္တံ၊ အန္တဂုဏံ၊ ဥဒရိယံ၊ ကရီသံ၊ မတ္ထလုင်္ဂံ၊ } မတ္ထလုင်္ဂပဉ္စက-ကမ္မဋ္ဌာန်း
ပိတ္တံ၊ သေမှံ၊ ပုဗ္ဗော၊ လောဟိတံ၊ သေဒေါ၊ မေဒေါ } မေဒဆက္ကာ-ကမ္မဋ္ဌာန်း
၆။ အဿု၊ဝသာ၊ခေဠော၊သိင်္ဃာ ဏိကာ၊ လသိကာ၊ မုတ္တံ။ } မုတ္တဆက္က-ကမ္မဋ္ဌာန်း

၃၂-ကောဋ္ဌာသ-မြန်မာ။

၁။ ဆံပင်၊ အမွေး၊ လက်သည်း၊ ခြေသည်း၊ သွား၊ အရေ၊
၂။ အသား၊ အကြော၊ အရိုး၊ ရိုးတွင်းခြင်ဆီ၊ အညို
၃။ နှလုံး၊ အသည်း၊ အခြေး၊ ဆုံးစွဲ၊ အဆုတ်
၄။ အူမ၊ အူသိမ်၊ အစာအိမ်၊ အစာဟောင်း၊ ဝမ်းနှောက်
၅။ သည်းခြေ၊ သလိပ်၊ ပြည်၊ သွေး၊ ချွေး၊ အဆီ
၆။ မျက်ရည်၊ ဆီကြည်၊ တံတွေး၊ နှပ်၊ အဆစ်၊ ကျင်ဝယ်

Fig. 31. The 32 parts of the body meditation of Burma.

## CONCLUSION

We have seen some of the lineages of a few of the classical cultures. And we have seen that their theories and practice of spiritual, meditational, healing, educational and physical cultivation have given rise to their own ecological, holistic and organic world views and have also crossfertilized each other. From this cross fertilization certain tendencies and qualities arise:

1. self awareness through a combination of perception and participation;
2. self responsibility through the internal and external disciplines;
3. self healing through the physical and mental forms and training;
4. integration of masculine/feminine and of body/mind polarities;
5. cross fertilization of internal systems as well as external cultures and disciplines;
6. direct perception and experience of the nature of humanity, of the universe and of reality itself.

These cultures and lineages have given rise to many disciplines, including yoga, acupuncture and martial arts, and they are the root of many recent body/mind disciplines. We have seen that physical cultivation in the classical world was not "just exercise," but an important way to realize an organic view of the world and of ourselves as whole. Physical cultivation was a way to healing, to responsibility, to integration and to balance. It was a way to awareness, a way to train the mind and body, a way to experience a direct perception of reality, a reality that by its own nature is inherently organic and holistic, as well as ecological within its own systems and levels.

Physical cultivation was a major means of inner and outer education and realization of these classical cultures.

We have explored this sort of psycho-physical cultivation in some detail, both historically and culturally. (In later chapters we will explore similar attempts in the west, derived not through thousands of years of tradition but through the egos of individual practitioners, and identify undercurrents in western history and culture in which similar approachs have existed.) We have also presented models of the body/mind continuum from diverse classical cultures, as well as maps and models which were important expressions of the experience of each culture. We have further delineated some of the health and medical aspects of each culture, as well as touched on their approach to education, and the role that "physical education" played in each culture's experience. Finally, we have provided maps of different aspects of this same body/mind continuum as seen from quite different cultures. In the next chapter we will explore integrated modern applications of some of these classical healing systems.

# CHAPTER V

# CLASSICAL HEALING SYSTEMS: MODERN APPLICATIONS

# CHAPTER V

## CLASSICAL HEALING SYSTEMS: MODERN APPLICATIONS

In the last chapter we examined a number of classical cultures and their world views, as well as some of the implications of these world views for a wide range of applications, from education and physical cultivation to spiritual liberation. In this chapter we will focus specifically on the approaches to medicine of a number of cultures, with an eye to the present-day interface of their traditional healing systems with modernization and western medical knowledge. We have examined the Ayurvedic system of India. We have also examined the Chinese system, but in this chapter we will explore its present applications. We will also delve into systems of Thailand, Burma, Africa and Mexico. Once again, in examining past historical perspectives on health, we hope to find material that might be useful to us in our present situation.

Thailand: a modern application.

In examining some additional therapeutic approaches here and in other countries let us turn to Thailand and the College of Traditional Medicine in Bangkok. Western medicine, as it was in China before the communist takeover, is the preferred medicine of Bangkok's economic and social elite. However, only 15% of Thai doctors trained in western medicine practice in the rural areas where 85% of the population dwells.[1] In the countryside itself this gap is made up by paramedics operating from primary health care centers and by doctors of traditional medicine. The government itself supports the College of Traditional Medicine at Wat Po, thus ensuring high

standards among traditional doctors as well as making the most of indigenous medical practices. Therefore traditional medicine is today the province of the people of Thailand.

Thai massage.

What does the curriculum entail?[2] The College, located near the famous Temple of the Reclining Buddha at Wat Po, has various departments, including herbal medicine, diagnosis and treatment, and traditional Thai massage. One department has been added recently -- Chinese acupuncture. Traditional Thai massage is itself a rather fascinating system, much more subtle and complex than most western massage which concentrates on kneading, striking or stroking the muscle tissue. Thai masseurs are trained to apply pressure along the "lines," following a precise system developed during more than 2000 years of medical practice in Asia. Westerners could see the "lines" as being similar to nerves and blood vessels, the Chinese would see them as being similar to meridians. It is an extremely vigorous form of massage, similar in some respects to a combination of American osteopathy and Japanese shiatsu. Thai massage is nearly as exact a science as osteopathy or shiatsu or acupuncture. Unlike acupuncture, it is not generally used as a painkiller or as anesthesia. Thai massage has proved to be quite effective in relieving muscular discomfort, such as cramps or spasms, nervous tension, ailments of the joints and connective tissue. It is today used in some cases of paralysis, and in the old days it was used to cure internal diseases.

Why does traditional Thai pressure massage work? A westerner might offer this analysis: western science has found that muscles can be affected

not only by direct action on them but also by reflex action through the nervous and circulatory system. The Thai system of relieving muscular pains and spasm by pressure along certain lines of the body automatically included treatment of both nerves and blood vessels. Unbeknownst to the ancient doctors of massage, the "maw nuat," this direct pressure on blood vessels and nerve reflexes affected the surrounding muscles and the muscular walls of the blood vessels, thus improving circulation.

The elements and their interactions.

Of course, the Thais have a much different explanation, one that comes from ancient medical texts once considered sacred. The explanation is based on the writings of an Indian Buddhist, Komarabhacca, who lived some 2500 years ago and studied at Taxila. According to the texts, the human body and all things in the visible world consist of four elements and their interaction: wind, water, fire and earth. When the delicate balance among these elements is disturbed, the result is disease or illness. The aim of treatment is to restore balance and equilibrium. An illness produced by an excess of fire is treated by a medicine having the contrary properties.

In the Thai approach, different diseases were associated with particular elements. Too much fire in the system could result in fever. However, the element responsible for the vast majority of diseases was wind. The flow of blood, digestion, perspiration, indeed all bodily functions, were caused by wind. Too much wind might result in indigestion, too little in faintness. Wind blowing downwards could lead to pain in the legs, wind blowing upwards to headaches. The main goal of traditional Thai massage is to redirect the wind, forcing it along the "lines" (which we might see as

nerves or veins or meridians), until proper equilibrium and normal bodily functions are restored.[3]

Thailand: how the tradition was kept alive.

The Thai system of education for these traditional doctors is interesting, for before, during and after the course of training and certification in the College of Traditional Medicine come periods of apprenticeship under existing practitioners. Some of the practitioners are monks and some of the temples are used as medical centers. The massage program of the college is located at Wat Po, in a modest stucco pavilion behind the main chapel of the famous temple. Such temples were not only medical centers but also the primary centers for education. Yet the temple of Wat Po is somewhat unusual, for its vast library was made available to the general populace through the vision of King Rama III. Through a spiritual vision, King Rama III wished to make this library available to all his people. He had the essential texts on Buddhism, geography, culture, literature, medicine and physical therapy engraved on stone tablets and set into the walls of open pavilions of the Wat Po temple. Whoever wished to learn, and could also read, which most could do, had merely to wander through the courtyards and study the tablets.[4] Perhaps we will act in a similar way with computer displays. Such displays and programs could encompass all that we know -- medicine from every culture on the earth. It could be of immense value, with instant recall of various cross-cultural ways of treating different diseases.

Next to the present massage building is a pavilion whose engraved charts explain the various lines and pressure points of therapeutic massage.

Looking much like acupuncture charts, these charts still explain which wind malfunction can be cured by pressure on which point. The charts are now available in book form, but the medical language is rather complex and archaic. Therefore knowledge of Thai massage is still transmitted by direct apprenticeship of disciple to teacher. In Thailand, the transmission of the old knowledge is still aided not only by the stone charts, but also by a series of ancient statues showing different postures for curing various ailments. Some of the postures are similar to yoga experiences. Others involve both a practitioner and a patient, and along with the engraved instructions, constitute visual models for the learning of traditional therapeutic massage and manipulation. Indeed, in the Textbook of Orthopaedic Medicine, James Cyriax, M.D., presents a picture of one of these manipulations. He uses the picture as a foundation on which to base his argument for the incorporation of manipulation therapy as the basic approach of Western orthopaedic medicine.

Chinese approach: a modern mass application.

The traditional Chinese approach is concrete, social and practical. It stresses use of food, herbs, exercise, sunshine and fresh air, acupuncture and moxibustion. However, in true "Confucian by day, Taoist by night" fashion, the Chinese have other medical approaches. The Chinese created separate branches of medicine to deal with those who wished to pursue meditation to its deeper levels.[5]

After Mao Tsu Tung came to power, the Chinese used the latent but almost forgotten strength of their indigenous healing systems as a major foundation for making some sort of health care, especially primary care,

potentially available to any Chinese. When the communists took over China, the medical and health care system was in a state of almost complete disrepair. Under Chang Kai Shek's rule, western medicine had been emphasized and traditional medicine ignored or even discouraged. But western medicine was available to only a very few, mostly the few urban wealthy who were allied with the generalissimo. When he and the nationalists fled to Taiwan, they took much of that western system and many of its practitioners with them. Since the traditional system had been allowed to lapse, the vast majority of the Chinese people, ravaged by a century of war featuring European occupation, mass opium addiction inspired by British financial interests, the Taiping uprising, the Boxer rebellion, intensive feudal warfare, Sun Yat Sen's war of national liberation, Japanese occupation, and the nationalist-communist struggle, were understandably without much medical assistance whatsoever from any system. The communists had a real health problem of massive proportions on their hands.

With a paucity of western doctors and few western facilities left, the communists' solution was directly out of the approach outlined in The Yellow Emperor's Classic on Chinese Medicine, but prescribed on a massive national scale. First, they decided, like the Thais, to go with their strength -- the 5000-year-old system of Chinese traditional medicine. So they instituted a large scale training and research program designed to gather all the existing knowledge of traditional medicine, as well as research new avenues for its use. From this they derived standard works which were then used to train, in their terms, medical cadres who could go where needed,

remote village or urban slum, to bring medical care. Thus the traditional system was revised, standardized and spread.

Later on, under the direction of one of Mao's personal physicians, Dr. George Hatem, a western trained American doctor from North Carolina, they began to integrate on a mass scale the use of western drugs and inoculations. Under Dr. Hatem's direction, social diseases such as syphilis and gonorrhea, rampant in pre-communist China, were virtually wiped out.[6] Social policy became a major factor in health care and health education.

Also, the Chinese began to train their medical cadres in some basic western techniques and medicines, to be used where needed and available. Their medical cadres became the equivalent of the Thai paramedics and traditional doctors. And we even have translated in English the standard names for these cadres, the so called Barefoot Doctor's Manual.[7] The book cross references each disease with the different symptoms. It also provides various alternative remedies -- herbal, acupuncture and western -- for each disease. It is thus a very valuable cross-cultural, cross scientific medical document. Western type hospitals, with their surgery, X-rays, other machines and drugs were a part of this integrated medical system. Yet they were a limited part simply because the Chinese resources of western trained doctors and equipment were limited. Since the opening to America under first Nixon and then Carter, the Chinese have been extremely interested in acquiring western skills, trained doctors as well as machines, to complement and further augment their present system. For their system is weakest in treating those things that western medicine is best at treating.

In terms of national health policy, then, the communists' approach was

right out of The Yellow Emperors Classic. The emphasis on diet became a national attempt to increase agricultural production and distribution and thus improve the diet of as many Chinese as possible. The emphasis on herbs was similar, stressing their cultivation, as well as the training of many more herbalists. To this was added the use of western drugs, where indicated and available. The emphasis on fresh air, sunshine and exercise became a nationwide re-institution of what the communists call modern and traditional calisthenics. Simply put, these are western type exercises integrated with traditional Chinese t'ai chi and kung fu exercises designed to promote strength, flexibility and the circulation of the chi.[8] Also the Chinese lifestyle, of necessity emphasizing walking and bicycling rather than automobile riding, promotes movement and exercise. Added to this is a traditional concept of hygiene and cleanliness which was re-emphasized and instituted on a national scale, which some say resulting in the extermination of flies in parts of China. Suddenly, over a period of some 30 years, there have appeared a workable national health care system with trained medical cadres and a vigorous, healthy population where starvation and illness had ruled for the previous 100 years.

Being communist the Chinese dropped all "mystical mumbo-jumbo" and "spiritual" content from their presentations of herbology, acupuncture, t'ai chi and kung fu. The whole presentation and context of these ancient disciplines is practical, concrete, utilitarian. From the marxist, materialist point of view, as well as the western point of view (Marx was, after all, a European social scientist writing about industrialized western material problems of capital and labor) the present Chinese approach to the research

and teaching of these traditional subjects is scientific. As a science, it is capable of recording and transmission on a massive national scale, through the use of books rather than or in addition to teachers. Interestingly enough, this modern Chinese approach has resulted in a "discovery" (or perhaps rediscovery) of additional acupuncture points as well as meridians or energy pathways. These discoveries have come from the basic scientific method of observation and experimentation, and have been duly recorded. Indeed, the "barefoot doctors," who must learn by practicing on themselves, have been primarily responsible for this additional knowledge. This communist approach to acupuncture has greatly influenced some of the young doctors from Hong Kong who have gone back and forth across the border. Ironically, in San Francisco and New York as well as in Taiwan, what Chinese medicine exists comes primarily from some of the traditional systems, with varying amounts of mystical and utilitarian content. And it has been passed on in the traditional way, through a system of apprenticeship and transmission from teacher to student.

Comparison of the medical and cultural paradigms of Tibet and Burma.

All of these medical theories and paradigms are similar in tone and thrust, yet all are different in expression and description, for each country and culture is different. The Tibetans had an overt spiritual culture, yet one intent on maintaining a feudal order of things with all its attendant roles and intrigue. Their elitist spiritual system led them to a medicine which emphasized those qualities -- the internal channels and the psychic air -- necessary for successful meditation and exploration of psycho-physical states. While there was some herbal medicine and acupuncture and

moxibustion for the common people, much of their medicine emphasized the spiritual well being of its temporal and feudal elite. Prayers and faith and actual psycho-physical manipulation were an essential part of their system.[9] From the Tibetans we have the potential for a wealth of information about medical needs for meditators as well as for people living at 15,000 feet -- specialties similar to our space medicine for astronauts, or our "plane medicine" for pilots and stewardesses who are constantly flying. From them also we have knowledge of the great power of visualization -- a specialty of their form of meditation of particular interest to people as diverse as cancer patients and top flight athletes. In their pre-Buddhistic past, the Tibetans were the most renowned surgeons in all Asia, before they adopted a view of the world quite similar to that presented in the paradigms arising from modern physics.

The Burmese and the Thais, who both employ a system of herbs and massage, emphasize one other important aspect of health. In Burma as in Thailand it used to be the custom for all youths to serve six months, not in the army, but in the monastery. Afterwards they were encouragd to pursue their practical, ordinary lives, intertwined with some spiritual awareness. A very few even became monks and nuns for longer periods, but unlike the Tibetans could give up the robes at any time. The culture was spiritual and practical at the same time, and they saw this world as a constant interaction of mentality (spiritual) and materiality (practical). From them we have the strong emphasis on constant change, as well as on the necessity for constant awareness. The acknowledgment of various conditions, and the attendant mental, emotional or physical entanglements which constituted

them, could then lead to the unravelment of various diseases.[10] Help could be obtained from material sources -- doctors of massage and herbology -- or from spiritual ones -- monks and nuns. These other sources were seen as not separate from one's own mental and material resources, and indeed as sort of an extension of them.[11] They have consciously pioneered one of the great self-help approaches to medicine found in the world today. For through awareness meditation one could martial one's own latent abilities and thus rebalance the constant interaction of mentality and materiality within oneself.

Self responsibility could then lead to self health. Ironically, the great Burmese spiritual teachers, also trained in the rigorous Buddhist intellectual tradition, saw health as a by-product. One could get it if one wanted, but the real goal was beyond, and health and strength were necessary for that pursuit. Health was perceived as a limited goal, however necessary. But the practices could easily result in health if you took the responsibility to act, and to actually do them. Sitting alone with your own mind and body, twenty hours a day, ten days in a row is not exactly "light work."

A Tibetan birth control pill.

The modern Chinese communist approach is, therefore, quite different from the spiritually oriented approaches of the Buddhist countries of Tibet, Burma, and Thailand. And Tibet, Burma and Thailand, though all Buddhist, are all quite different from one another, much as Christian Sweden differs from Christian but, heavily-Indian, Mexico. In Tibet, for instance, there were two medical colleges, both generally dominated by monks. Otherwise, Tibetan medicine was passed down from parent to child, remaining in the

same family for generations. Dr. Lobsong Dolma, a Tibetan physician who has been a visiting professor at the University of Virginia Medical School, comes from 22 generations of doctors.[12] While she was in Tibet, her family had access to the medical records of those 22 generations, that 1000 year history, of medical practice. She has also invented an amazingly successful birth control pill for women. Derived from Tibetan herbal substances, the pill is taken once a year and has no visible side effects. The formula is slightly different for each woman, depending on Dr. Dolma's evaluation of each individual.[13] Thus it is not necessarily useful for modern drug manufacture -- even if the companies wanted us to know of its existence. However, it has made many Tibetan men and women very happy.

This Tibetan birth control pill is presently being researched at the University of Virginia Medical School. Perhaps its history will be similar to the story of penicillin in the West. The British inventor of penicillin refused to patent his invention. In response, the drug companies refused to manufacture penicillin, for none of them could buy the patent and monopolize the market. Penicillin was invented before World War I, but was not commercially manufactured until right before World War II. It was unavailable to all those suffering through World War I and the depression. The drug companies, in effect, refused to provide it, although they knew about it, to a world greatly in need.

Comparison of the element systems of Thailand, Tibet, Burma and China.

The Thai approach is similar to the Tibetan five element approach. However, the Tibetans emphasize the presence of a fifth element -- space. The Tibetan word for wind, "lung", is more accurately translated as psychic

air or energy, similar to the Indian "prana," the Chinese "chi," the Japanese "ki." The Tibetans also saw this "lung" or psychic air as an essential element in the function of the body. But their medical system stresses its movements along internal channels, rather than the external channels found in the Thai system, as is presently taught, or the Chinese system. In fact, the Tibetans use of space as the vital central element in a five element system leads to a little different translation of the terms earth, air, fire and water. Earth becomes solidity, air motility, fire heat and water fluidity. The elements can be seen as describing the nature of the interaction, and of the forces of that interaction, of atomic and subatomic "particles." The great multi-colored swirling diagram on the wall of Paro Monastery in Paro, Bhutan[14] lends credence to this perspective. Could the Tibetans have based some aspects of their medical system on a representation of the awareness of the universe quite similar to the one we find in modern physics?

Could the Burmese have done the same with their own five element medical theories, which stress that the entire universe, and thus man and man's functions, diseases and imbalances, are the product of the interaction of two basic forces, which are translated as mentality and materiality? We have in Burma a basic approach similar to the Chinese combination of the Taoist yin-yang symbol and the Chinese medical five element theory.

The Chinese five element theory is not built on space. Their five elements are fire, earth, metal, water and wood. These elements are arranged in a five pointed circle which also circumscribes a five pointed star. The five pointed symbolism for man itself is also found in the west in the great art of Leonardo Da Vinci, and other proponents of the "golden

mean." Thus the Chinese system is different. Like the Chinese people, it is concrete, practical, directly related to man and his practical interactions. Indeed it is described symbolically as the interaction of the five seasons that existed in the Chinese year -- spring, summer, Indian summer, fall, and winter. The procession of these seasons is similar to a procession of ever changing mental and emotional states. The Chinese posited five basic emotions -- anger, joy, sympathy, grief, and fear -- and their medicine looked for an orderly procession of these elements as well as a balance within each element. Too much fear was as unbalanced as too little fear, for too little fear could lead to foolhardiness and death. They strove for balance within these elements and balance within the movement, interaction and orderly and natural procession of these elements.

Mexico: the remnants of an indigenous acupressure system.

The Thai tablets seem similar to the 2500 year old "garden mural", reproduced in the Museo de Anthropoligia in Mexico City. The mural is but the most well preserved side of a giant four sided mural covering the inside walls of a building. It was thought to have pretty pictures of shrubs and people on it, in some sort of orderly sequence, until someone perceived that what remained of the mural on one side showed dentistry and teeth removal, and what remained on another side showed surgery, including brain surgery. The garden mural, then, appeared as a rather clear and extensive herbology chart, showing the plant, the human malady, the time for cutting, the method of preparation, the application, internal or external, and in what way, and the result. The building has been redesignated, and is no longer seen as the large house of a rich priest but as a medical clinic, featuring

dentistry, surgery and herbs. But what does the fourth wall contain? Could that be a Mexican Indian version of acupuncture, of lines of flow and pressure points? From my own experience, I know that such a system exists among some of the Mexican Indians. It is as complex as the different systems of Tibet, Thailand or China. The Indians of Oaxoca use a different system than the Indians of nearby Mitla. And their systems differ from several systems still extant among various Mayan groups. The church has attempted to suppress these indigenous systems as well as the written Indian languages. It has been much more successful than it was in China. There is little written material on these systems, save perhaps in the Vatican library or perhaps among some of the Mayans. Yet the system has been passed down from teacher to pupil, and is still used. I once used one of their special points on the student of a famous north Indian singer, Pandit Pranath, who had a throat difficulty right before a major concert. Pandit Pranath was very surprised and wished to know how I had learned a secret point passed down to him by his Hindu teacher. Mexico has at least the remains of indigenous medical systems. How extensive the knowledge of these systems is among the various quite diverse Indian nations I do not know, as I only learned a few things and did not catalogue the system. I only know that it exists, that it worked for me, and that it has some similarities to Chinese or Indian systems.

The African experience.

In the modern nations of black Africa, medical care, among other aspects of life, combines ancient tradition with modern practices. In 1979, Nigeria passed a law that integrated herbalists and "spirit mediums" into the

national health service. In Zimbabwe, the "nganga," the practitioners of traditional African healing arts, have set up, with government encouragement, an 8,000 member professional association. The Zimbabwe Traditional Healers Association has established a research center to explore the secrets of traditional herbal medicine as well as a training program, which includes classes in hygiene and preventive medicine, for traditional medical practitioners. The Nairobi Research Center for Traditional Medicine has already reported that "at least 50 per cent of the herbal remedies used by the witch doctors have genuine medical value."[15]

Many ngangas have incorporated aspects of Western-style medicine into their practices, and sometimes send people to hospitals. The ngangas are particularly successful in treating emotional illness. Sometimes the ngangas employ the "ndop," an eight day ritual, as a powerful form of emotional therapy. There are frequent reports of dramatic cures. According to Newsweek magazine, Robert Sherwood, a retired white insurance manager in Zimbabwe, suffered for a number of years from increasingly severe attacks of gout. The drugs prescribed by the western doctors did him no good. Finally, Sherwood saw Binzara Tshuma, a nganga. The nganga administered a mild tasting brown potion to drink. The symptoms disappeared. Tshuma claims: "We know more than the white doctors."[16]

Afro-American and Native American Medicine.

In Hoodo Medicine: Sea Islands Herbal Remedies, Faith Mitchell traces the evolution of African herbal medicine in North America. Mitchell claims that slave healers and herbalists, often deeply influenced by Native

American medicine, were instrumental in the health of blacks on the plantations. Kenneth Stampp, in The Peculiar Institution: Slavery in the Ante-Bellum South, states:

> "the state of antebellum medical science made it uncertain that even the most conscientious master would invariably prescribe better remedies than. . .the slave healer. . . Diseased slaves who received (white antebellum) remedies. . .could have counted themselves fortunate if the remedies did not retard recovery or hasten death."[17]

Native American medicine strongly influenced Afro-American and white folk medicine. In The Complete Herbalist, Dr. O. Phelps Brown states:

> "The red men of the American forests were never at a loss to know which plant is best, nor the time it should be gathered, to cure them of disease. They know how to treat their complaints, in physic, surgery, and mid-wifery with a skill that far surpasses that of many a learned doctor of the big medical schools, with all their science."[18]

Colonials who lived close to Native Americans respected their medical expertise and tried to acquire some of their vast herbal knowledge. Virgil Vogel, in American Indian Medicine, states:

> "So complete was the aboriginal's knowledge of their native flora that Indian usage can be demonstrated for all but a bare half dozen, at most, of our indigenous vegetable drugs. In a surprising number of instances, moreover, the aboriginal uses of these drugs correspond with those approved in the Dispensatory of the United States. There is in addition a list of several hundred aboriginal remedies which have been used in domestic medicine as well as by physicians.[19]

Cross pollination.

So we find some fascinating cross pollination already taking place. And we can see our country, through accidents of time and place, becoming

not just a melting pot but a veritable cross-roads for ancient and modern cultures. For Americans come from Europe and Africa, and from the remnants of the original Native American cultures. There is a large Japanese population here, a large Chinese population, a large population of Hindus and Sikhs from India. All have brought something of their native culture to our shores, especially these arts of healing and exercise. There are also the Americans of European as well as Asian extraction who themselves have gone back or gone abroad and studied these arts.

In India, we find the continued use of the Ayurvedic medical system. We have even found an American, Dr. Randolph Stone, who studied this system, then adopted it for American use, and brought it back to America as polarity therapy,[20] a version of classic Indian medical arts adapted specifically for western mind, western man and western society. In Japan, we find another system in jin shin jytsu,[21] a system which sprang up some fifty years ago at a time when several other well known Japanese systems of health and movement were discovered. Although jin shin jytsu was once used on the emperor, its major surviving exponent is Mary Burmeister, an American woman of Japanese descent who is married to a German, and who is passing the art along mostly to American and German students.

We have a tendency to write off people such as the Australian Aborigines as primitive and backward. Yet they have perhaps the longest continuous oral historical tradition on earth. Our medically approved western approach to dreams is a quite recent development. The Aborigines have 40,000 years of Aboriginal oral history, 40,000 years of intensive dream work. There is obviously much we can learn from all these peoples, yet we

dismiss them as having little to teach us.

As we shall see, Americans have even dismissed as "unscientific" one very powerful European approach to medicine that originated in Germany and is still quite popular there and in Great Britain. This approach, homeopathy, used to be quite prevalent in America, but it has been allowed to die out or been stranged. Yet the royal physician to the Queen of England, Dr. Margery Blackie, is a homeopath. In her book, The Patient not the Cure: The Challenge of Homeopathy,[22] Dr. Blackie explores the differences between homeopathy and its empiric method, and allopathy and its rational method. The basic theory behind homeopathy is that "like cures like". Relying on their vast pharmacopea, homeopaths administer minute, highly diluted doses of substances which create the same symptoms in a well person as are exhibited by a "sick" person. Their method is a combination of direct observation and extensive questioning. Thus homeopathy is empiric and experiential in method, and emphasizes the total health of the patient, not just the "cure" of various temporary "symptoms."

One of the greatest successes of rational medicine comes from the homeopathic approach, the use of inoculations. This brilliant western innovation has been largely responsible for rolling back the threats of devastating epidemics in the world. Yet we find that China, some 2000 years ago, possessed a similar system of inoculations. In particular, the Chinese innoculations prevented the sort of smallpox epidemics, which devastated Europe and led to the destruction of the Aztec and Inca cultures of the western hemisphere.

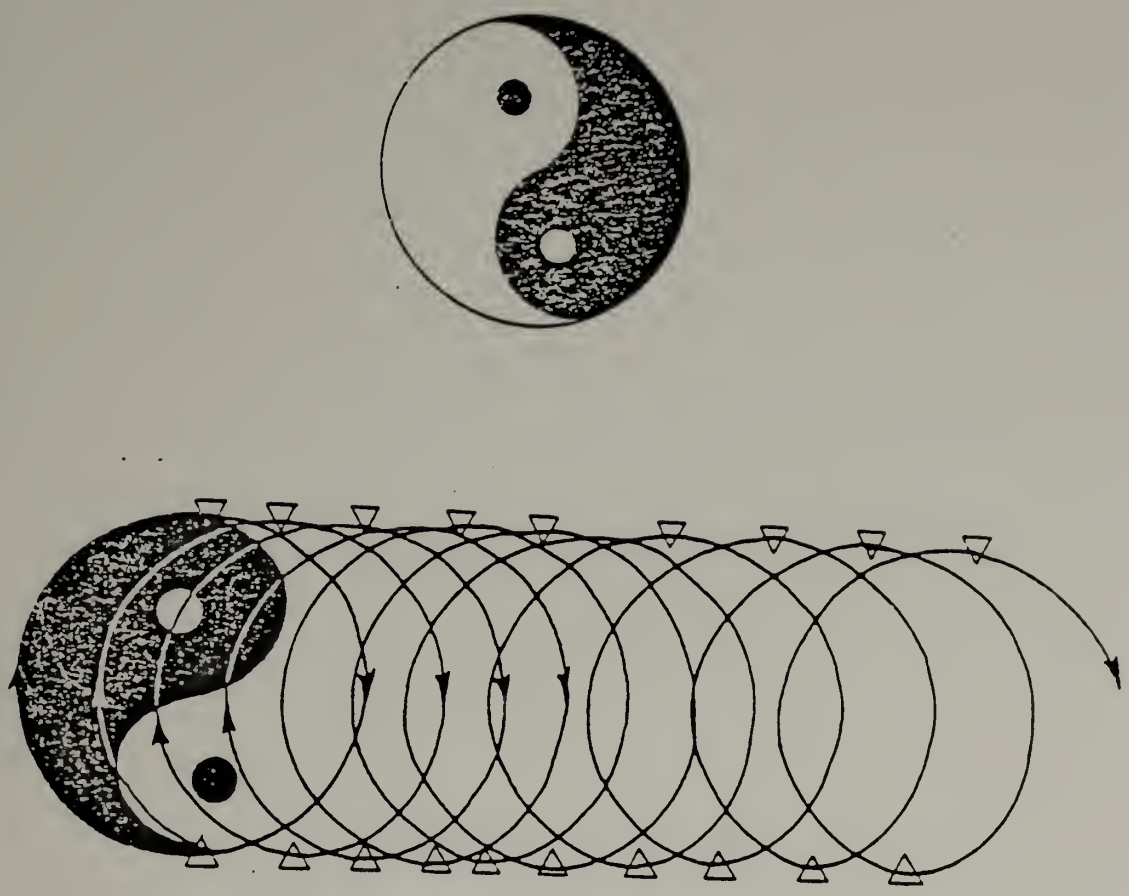
Germany is homeopathy's original home, and it is still quite popular

there. Outside of the AMA building in Washington, D.C. is a single statue, that of Dr. Samuel Hahnemann, the founder of homeopathy. Here is a great irony, for the political lobbyists of the AMA were largely responsible for killing off the homeopathic medical schools in America. In the next chapter we will explore the fascinating and forgotten story of the AMA, from its inception to its role in the formulation of "political medicine" and in the suppression of almost all other competing healing systems in the United States.

Conclusion.

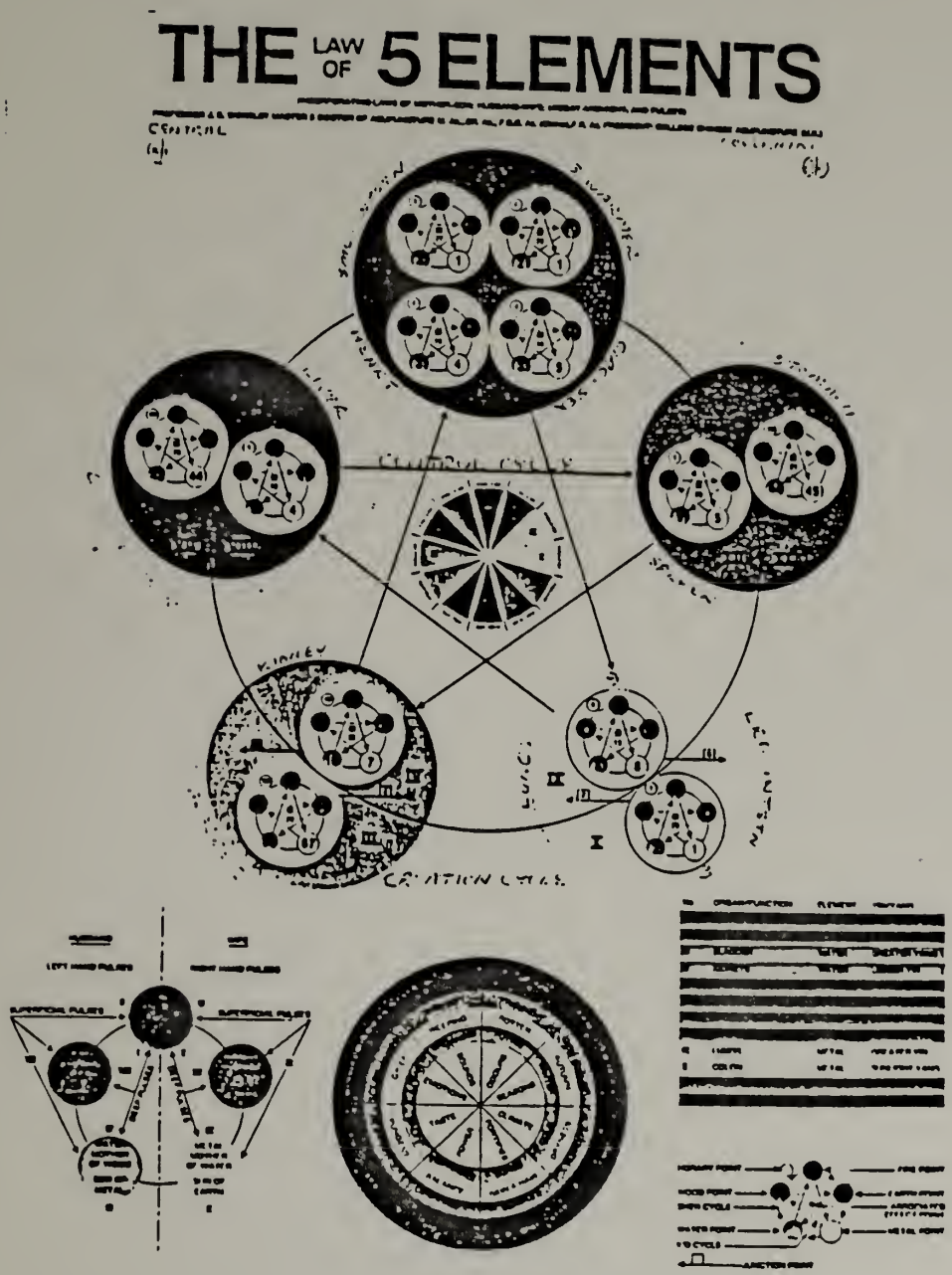
So the traditional medical cultures never died in China, Burma, Africa, India, Thailand or Tibet, and they have been used and integrated with western medicine to evolve extensive health care systems on different levels. Such systems even exist in the west. In Mexico, from a vibrant and advanced series of Native American cultures, there are the remains of such a system. In America, we have remnants of both Native American and African medicine. In addition, there are the Appalachian systems of zone therapy and reflexology. Perhaps these systems have Native American roots, or perhaps a combination of Native American and European. Our own technology has relegated our traditional culture to oblivion, to dusty and forgotten books, or to rural hinterlands. If we truly began to search our own medical history, both European and Native American, African and Asian, we might find some fascinating results. We may have cut off a rich heritage, a source for an expanded medical diet.

# THE BODY/MIND CONTINUUM:
# CLASSICAL/MODERN APPLICATIONS



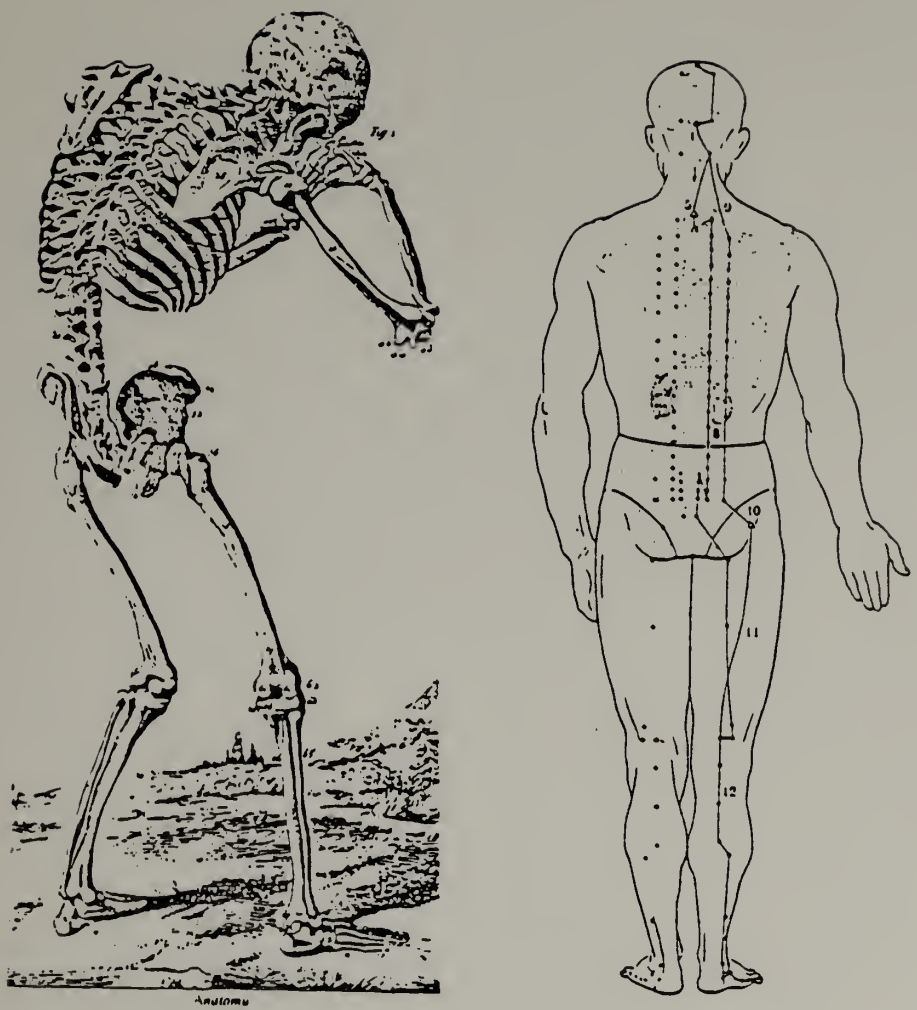
From Acupressure Way of Health: Jin Shin Do.
Teeguarden, Iona. 1978.

Fig. 32. Yin and yang: a spiral of change.



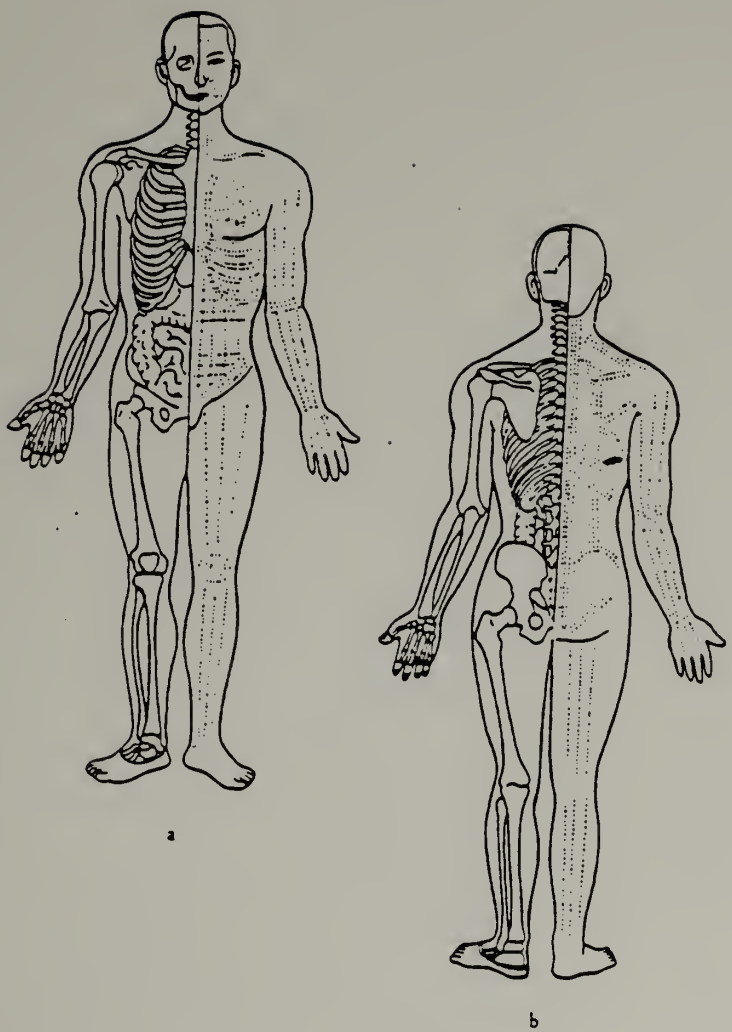

From Professor J. R. Worsley, President, College of Chinese Acupuncture (U.K.)

Fig. 33.



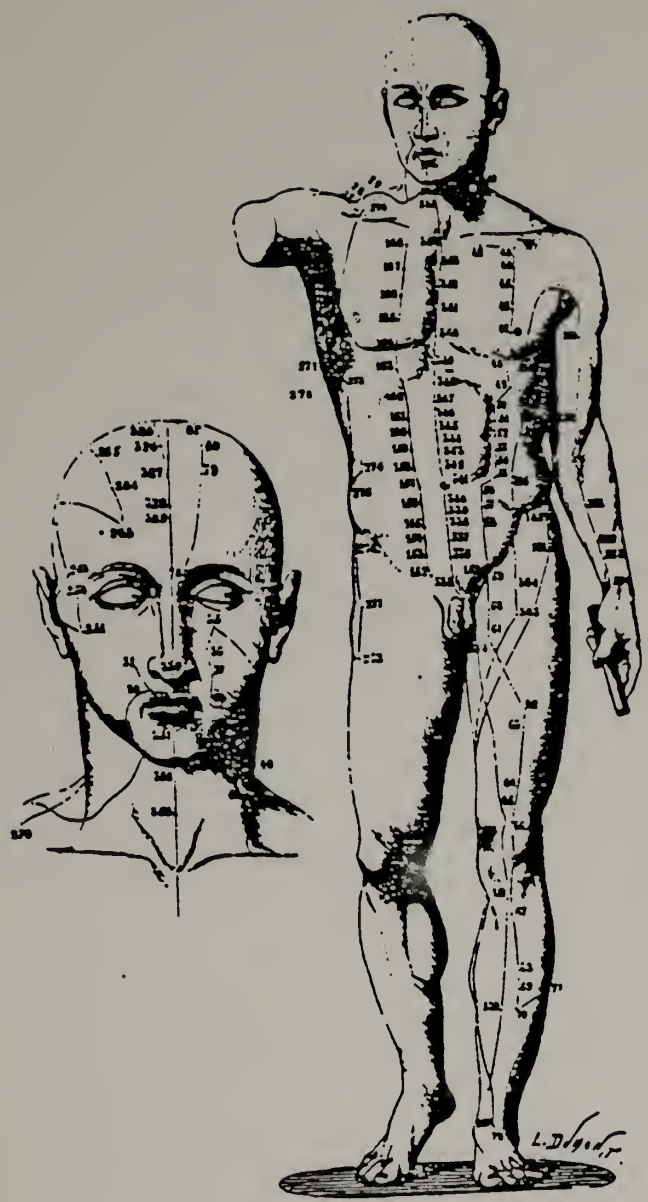
From catalogue, College of Acupuncture and Traditional Chinese Medicine, San Francisco.

Fig. 34. Anatomy: mechanical and energetic.




For diseases of the internal organs and the nervous system, tapping on the corresponding areas along the spinal column or points of the Urinary Bladder Channel on the back may be used as the main treatment. From An Outline of Chinese Acupuncture, People's Republic of China, 1975.

Fig. 35.



ACUPUNCTURE CHART

Reproduced from: P. Dabry, *La Médecine chez les Chinois*, ouvrage corrigé et précédé d'une préface par M. J. Léon Soubeiran. Paris, 1863

From The Yellow Emperor's Classic of Internal Medicine, translated by Ilza Veith, 1949.

Fig. 36.

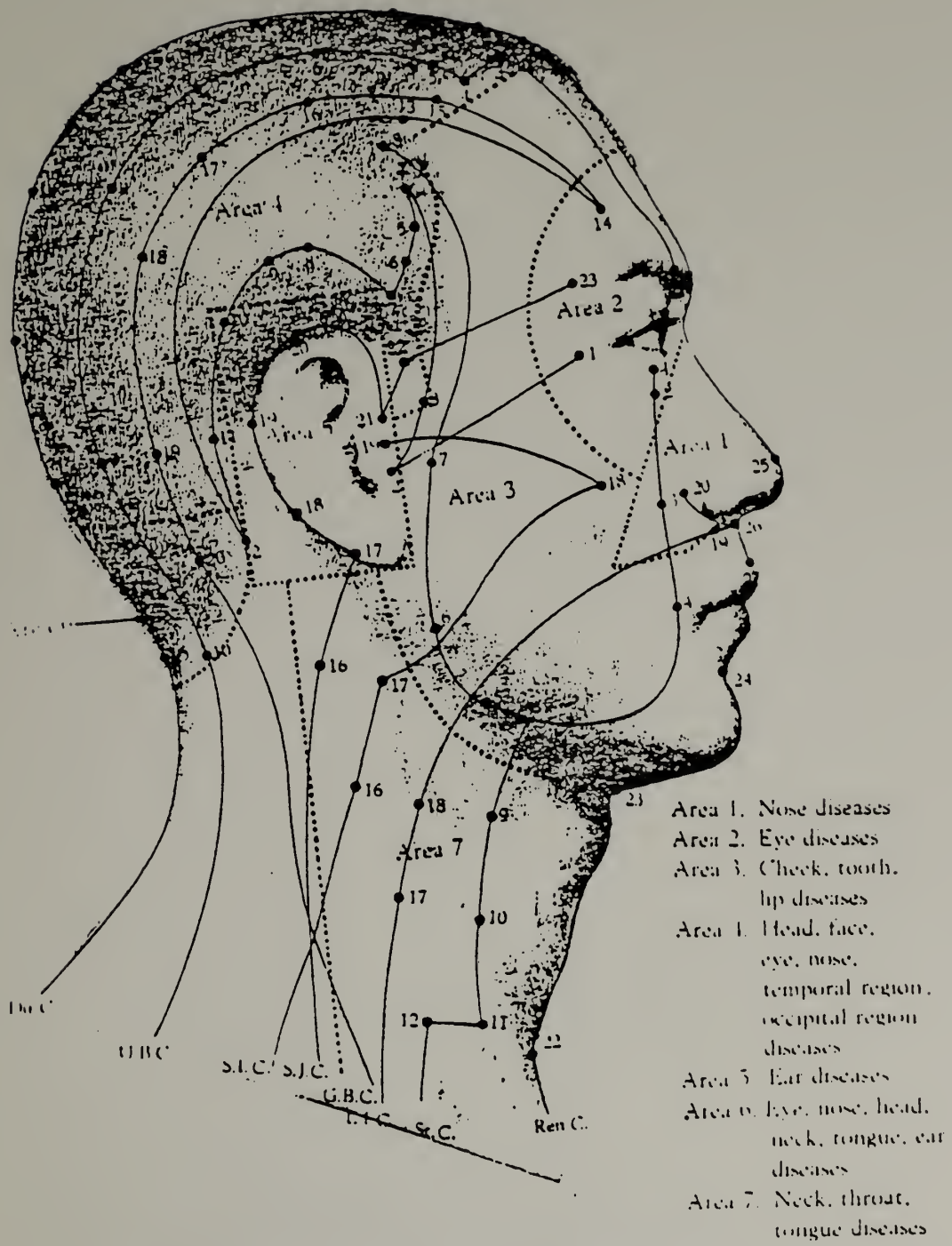



Fig. 37. Therapeutic Properties of the Points of the Head and the Neck

From An Outline of Chinese Acupuncture, People's Republic of China, 1975.

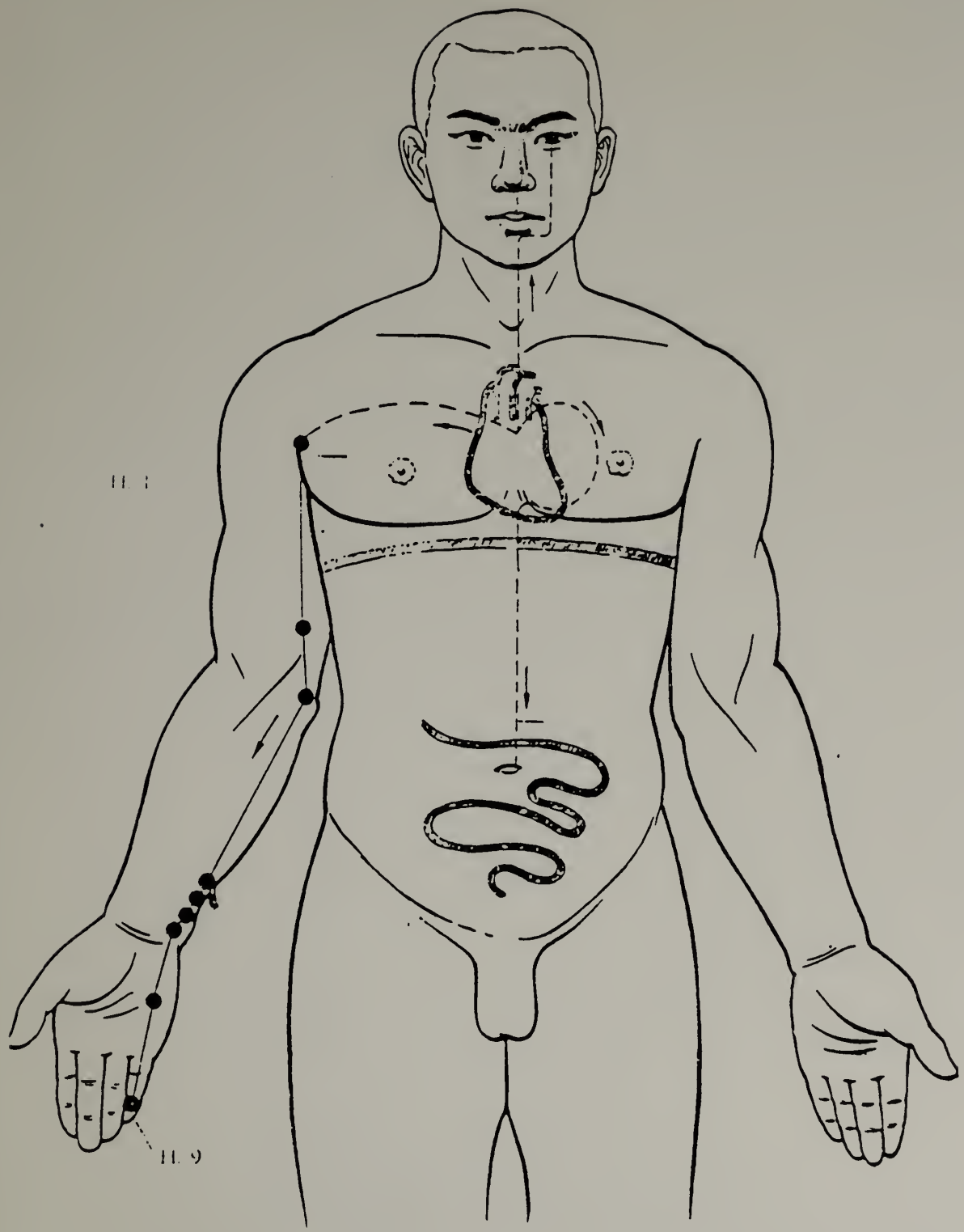
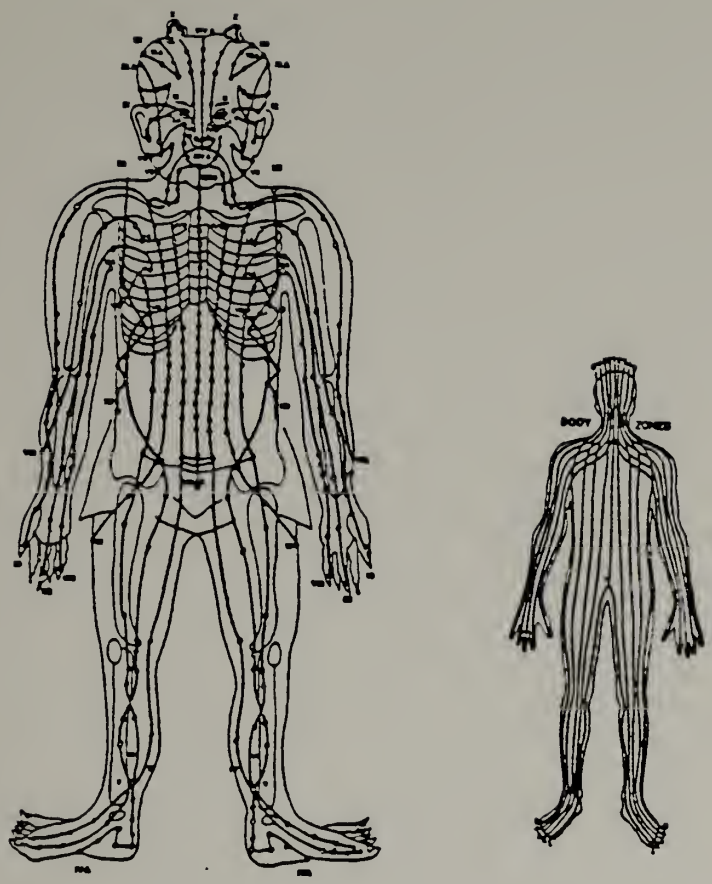


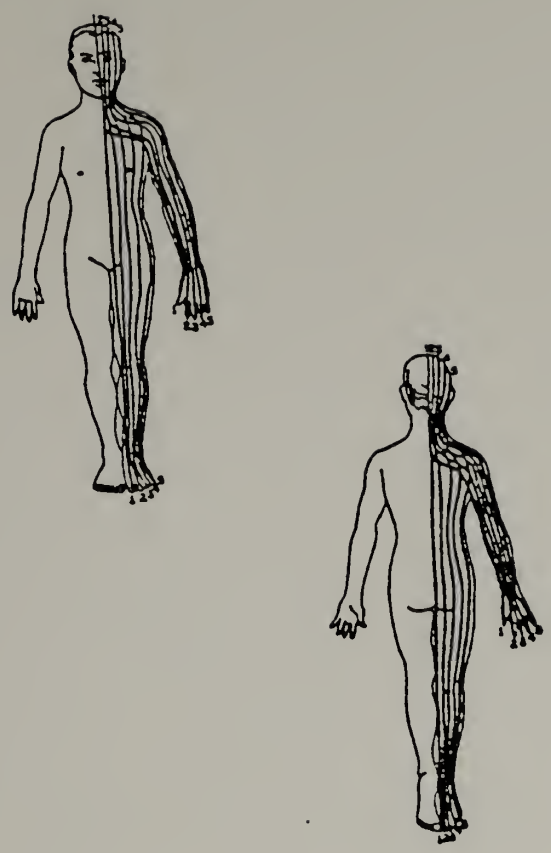
Fig. 38. The Heart Channel of Hand-Shaoyin

From An Outline of Chinese Acupuncture,
People's Republic of China, 1975.



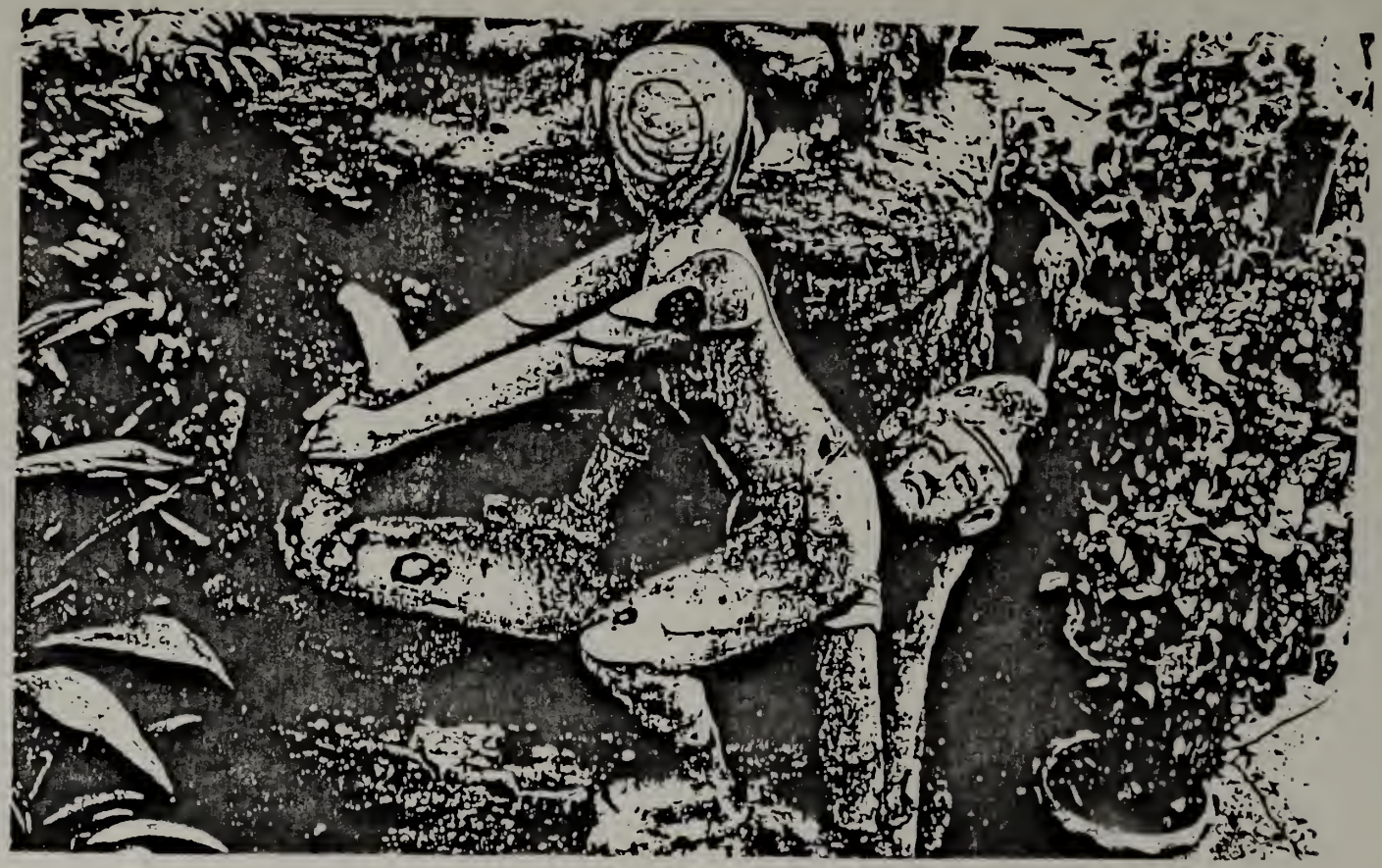
A comparison of ancient Chinese acupuncture meridians (left) and recent American zone therapy (right). From Zone Therapy, Anika Bergson and Vladimir Tuchak, 1974.

Fig. 39.



From Zone Therapy, Anika Bergson and Vladimir Tuchak, 1974.

Fig. 40. Body zones.



*One of a series, this 18th-century statue at Bangkok medical college depicts a painful ailment—and the way its sufferer obtains relief.*

From Textbook of Orthopaedic Medicine, Vol. 1. James Cyriax. 1978.

Fig. 41. Manipulation: an ancient statue from Thailand.

# CHAPTER VI

# THE EFFECTS OF RATIONALITY: THE STORY OF MEDICINE IN 19TH CENTURY AMERICA

# CHAPTER VI

In the west we have our own indigenous healing systems which approximate the traditional medical, movement, health care and health education systems found in countries throughout the world. However, we have not evolved cooperative health care systems which utilize the tools of our own traditional indigenous systems along with the surgical and pharmaceutical tools of our dominant rational medicine. The underlying obstacle to the emergence of allied, cooperative health care systems comes from believers in the Newtonian paradigm. They have dominated political policy and economic institutions as well as practiced restrictive exclusion and even suppression of all other views and approaches.

Following western colonial and corporate expansion, rational medicine, with extensive financial help from the major pharmaceutical and medical technology companies, has spread around the globe. However, as we have seen, other countries, without the burden of powerful western economic and political interests, have encouraged indigenous traditional medical systems in conjunction with the rational system. In the non-western countries, we find the potential emergence of a diverse and rich world medicine, with distinct local variations. Richard Grossinger terms these traditional systems planet medicine in Planet Medicine: From Stone Age Shamanism to Post Industrial Healing.

There are few western exceptions to the pattern of rational medical dominance. Most noticeable is Germany, the home of homeopathy, where there remains a strong tradition of both homeopathic and naturopathic medical practice and limited precedent for government suppression of non-

rational medicine. France, with its long colonial contact in Southeast Asia and the Orient, has an active, hundred-year-old tradition of acupuncture. Yet even acupuncture is the exclusive perogative of M.D.'s trained in the rational approach, and others are forbidden to practice, facing severe legal suppression. In Britain, only doctors with a conventional education are licensed to practice, although a number of them do practice homeopathic medicine. None of the other approaches are licensed by the state. However, adherents of naturopathy, osteopathy, chiropractic, acupuncture and other approaches are free to pursue their specialty as unlicensed practitioners, although they are not included in the national health insurane plan. They are free to compete among themselves; the primary market, which is subsidized by the taxpayers and controlled by the British Medical Association, is the exclusive perogative of M.D.'s.

Nowhere in the west has the legal, political and economic suppression of non-rational medicine been so successful as in America. American medical "history" cities constant progress in the technology of drugs and surgery, supposedly giving us the best medical system in the history of the world. As we shall see, this view of medical evolution is more propaganda than fact, a medical version of the Yale history curriculum's implied promulgation of the dualistic rational theories of progress and western superiority. For in America, the political lobbies of the AMA, with powerful financial backing from the major pharmaceutical firms, destroyed the economic and institutional basis of all other approaches through legal and political suppression. They also rewrote the story of medicine to label these other approaches as quackery, exclude them as not worthy of mention, and

convey a patently false impression of the triumphs of orthodox medical research.

Traditional healing systems in America.

Today we find the emergence of a wide variety of healing systems from different cultures and from different traditions within western culture. These systems, presented as if they have sprung up almost spontaneously in our rich cross cultural soil, have been viewed as part of a modern holistic health movement in America. Such a classical/modern holistic approach to health seems to answer some of the excesses and failures of the dominant approach. Yet our ignorance of the history of medicine in America leads to grave misconceptions, for many of these other approaches to healing have strong roots in America. Indeed, rational dominance in medicine is a comparatively recent development, for in 19th century America we find the antecedents of most of the approaches and attitudes to healing now labeled modern holistic health. Not only did these approaches thrive, they at one time were at least as popular as conventional medicine, until the newly formed medical guild, the AMA, with powerful financial help from the major drug companies, undertook its systematic policy of legal, political and historical suppression. Let us turn to that forgotten history of medicine in America for help in our present medical dilemma, keeping in mind the both/and boostrap holographic philosophy and the possibility of tolerant, pluralistic political actuality.

Harris L. Coulter, in The Divided Legacy: A History of the Schism in Medical Thought, Volume III, Science and Ethics in American Medicine: 1800-1914, reconstructs this lost history in meticulous detail. Coulter

presents his thesis of an ancient split in western medicine between empirical and rationalist therapeutic doctrines. His first volume traces this split from Hippocrates to Paracelus, his second volume delves into the 15th to the 19th centuries in Europe, and his third volume deals with the story of medicine in 19th century America.

Coulter opens his description of the American medical scene in the early nineteenth century by stating:

> "In the 1820's and 1830's the corporate body of American physicians -- a well-established professional class with a virtual monopoly over the legal practice of medicine -- lost its privileged position and political power to a series of competing and hostile groups of practitioners. The network of medical societies collapsed, together with the legal bulwarks of orthodox medicine, and public opinion demanded that anyone desirous of setting up as a healer be so permitted. Until the end of the century medical practice in this country was a contest among opposed therapeutic persuasions."[1]

There were a number of competing views:

1.) The orthodox or allopathic physicians, the body of medically educated and licensed practitioners, upheld conventional rational medical doctrine, which was derived from the solidist tradition of the Scotsmen, William Cullen (1710-1790) and John Brown (1735-1788) and the American, Benjamin Rush (1745-1813).

2.) The "Indian doctors" or "herb doctors" who had obtained their medical knowledge from the American Indians or from whites who had been in contact with the Indian medicine men. (Among the practicing herb-doctors was Thomas Jefferson, who had done extensive study of the Indians remaining in his region.) Most of the Indian doctors were not educated in the medical schools; the educated herb doctors were known as "botanical practitioners."

3.) The Thompsonians used a simple system, devised in New England by Samuel Thompson (1769-1843), involving copious use of steam baths and a native American emetic, the lobelia root, as well as 65 other herbal preparations. The Thompsonians drew on an Indian tradition of sweat lodges, as well as a similar tradition of saunas from Finnish and Scandinavian emigrants to the western hemisphere. In the late 1840's the Thompsonians and the botanics fused into what became the eclectic medical school, which eventually evolved into the American naturopathic medical system.

4.) In 1825, homeopathy, the work of the German physician Samuel Hahnemann (1755-1843), was introduced in the United States. Homeopathy, a complete theory of therapeutics with its own roots in medical history, opposed orthodox allopathic theory in the interpretation of symptoms, the classification of disease, the significance of physiology and anatomy for medical practice, the use of surgery in therapeutics, the appropriate drugs or medicines for a given kind of disease, and in all other aspects of medical practice. Homeopathy was introduced with a wave of Germanic emigration to the new world.

5.) Chinese medicine with its own tradition of herbs and acupuncture, as well as its theories of yin/yang, five elements, meridians and chi, appeared in San Francisco, and spread throughout the west, following the laboring path of the Chinese, especially the railroad workers. Chinese medicine was followed by Japanese, Korean, Philipino, Indian and Samoan medicine. In Hawaii, there are still active practitioners of Hawaiian medicine, especially lomi-lomi massage and the spiritual and

herbal medicine of the kahunas.

6.) In the later part of the century, manipulative medicine arose to prominence, including the American derived systems of osteopathy and chiropractic. Antecedents for these approaches lay in the bonesetters of England, the massage therapists of Sweden, the bone doctors of China, and the practitioners of physical manipulation and finger pressure one finds in various Native American traditions. These antecedents are somewhat obscured, because these two American systems claim to be derived from single founders, Andrew Taylor Still for osteopathy, and D.D. Palmer for chiropractic. Other indiginous systems also arose, including reflexology and naprapathy. Although osteopathy and chiropractic now claim to be the major inheritors of the manipulative tradition, there are a number of other indigenous approaches, including the brilliant synthesis of naturopathy and ancient western and eastern manipulative tradition by a unique American medical genius, Lauren Berry.

The repeal of laws restricting medical practice.

In the early 1800's, the orthodox physicians on the eastern seaboard consolidated their hold on American medicine by convincing various state legislatures to pass strict medical practices laws, including fining of unlicensed practitioners, forbidding practice without a license from the state medical society, and barring unlicensed practitioners from suing in court to collect their fees. Ohio passed such laws in 1810 and 1816, yet by 1819 all these provisions were repealed in Ohio and the field of medicine was open to all. Similar laws were passed in Massachusetts in 1819, and repealed in 1835. A Goergia law was amended so that it not be construed to

operate "against the Thompsonian or Botanic practice, or any other practitioner of medicine in this state."[2]

Restrictive medical practice laws in New York State, adopted in 1806 after a meeting of rational physicians who determined "the necessity of adopting some vigorous measures for the suppression of empiricism and the encouragement of regular practitioners,"[3] incorporated county and state rational medical societies, granted them the right to license practitioners, fined unlicensed practitioners $25.00 for each offense, and forbid unlicensed practitiners to sue in court to recover their fees. Public outcry was intense, and the law was regarded as an "unconscionable infringement of constitutional rights."[4] By 1807 amendments had reduced the fine from $25.00 per offense to $5.00 per month and defined "unlicensed practitioner" so rigidly that hardly anyone qualified. The amended law stated that "nothing therein was presumed to debar anyone from using or applying, for the benefit of any sick person, any roots, barks, or herbs, the growth and produce of the United States."[5]

The amended law also stated that any apothecary could presribe; individuals could set themselves up as apothecaries and prescribe over the counter. Furthermore, anyone who did not practice medicine "as a profession" could prescribe, so a person with another source of income could also prescribe and charge. The president of the New York State Medical Society lamented that in the few trials for unlicensed practice that came to court, the required testimony of orthodox physicians "is, on such occasions, received with suspicion and disfavor by juries, so that, in fact, all the pains and penalties declared against irregular practitioners of medicine have for

years been almost a dead letter . . . . on almost all occasions the sympathy of the public has been on the side of the offending party, while nothing but odium has fallen to the shame of the medical profession, for aiding the prosecution."[6] In 1843, when the Cayuga County Medical Society prosecuted a layman for practicing homeopathy, the jury found for the society, fined the layman 3/4¢, then donated their own fees for jury service to the local homeopathic society. One outraged English traveller wrote to a New York physician, "How came your legislature to pass so unconstitutional an act as that called the anti quack law? -- such as the parliament of England would hardly have ventured on? -- for who will define quackery?"[7]

Public opinion throughout the United States was highly aroused against "any monopoly of medical practice by the orthodox profession."[8] One New York legislator commented that "no issue before the legislature had ever been the object of more public pressure."[9] A New York County Medical Society wrote in 1845:

> "Law is the expression of the public will, without which it can neither be enacted, sustained, nor executed. The written statute is therefore a dead letter whenever the public mind is arrayed against it. And this is preeminently the case with regard to the medical law of this State at the present time. Empiricism is everywhere rife, and was never more arrogant, and the people love to have it so. That restless agrarian spirit that would always be levelling down, has so long kept up a hue and cry against calomel and the lancet, that the prejudices of the community are excited against, and their confidence in the medical profession greatly impaired, and no law could be enforced against the empiric and nostrum vendor. Every attempt of the kind would only create a deeper sympathy in their favor, and raise a storm of higher indignation against the profession. This spirit cannot be controlled by arbitrary legislation."[10]

In 1844, New York completely abolished the restrictive practice law, allowing anyone to practice and sue for fees, the public's only protection

being the provision for criminal prosecution, "in cases of malpractice, or gross ignorance, or immoral conduct in such practice."[11] The legislative committee which reported the bill and recommended passage stated:

> "It is also clear to the minds of your committee that such enactments operate to restrain rather than to incite research and investigation into the hidden truths of the science, by placing it in the power of one school of the profession, encircled as they now are by the strong arm of the law, to apply the epithets of quack and empiric with great force and effect to those (perhaps equally scientific with themselves) who in their investigations venture to overstep the prescribed limits of the legalized profession, and discover what to their minds is evidence of error in the old system, and reason sufficient to induce them to propose a new and different one, a result decidedly to be deprecated by the people at large, when viewed with reference to their true interests, which must be supposed to favor such a state of our laws as will induce to the greatest advances of the science of medicine and to the most thorough investigation by all who profess its knowledge."[12]

In the debate on the new law, the senator who introduced it said:

> "A people accustomed to govern themselves and boasting of their intelligence are impatient of restraint. They want no protection but freedom of inquiry and freedom of action."[13]

Another senator claimed:

> "The people of this state have been bled long enough in their bodies and pockets, and it was time they should do as the men of the Revolution did: resolve to set down and enjoy the freedom for which they bled."[14]

Thus from the 1830's to the early 1900's rational medicine lacked the privileged position and political and economic monopoly it had briefly enjoyed throughout the United States. The constitutional right of unrestricted practice encouraged free market public access to diverse medical practitioners, and grew out of the widespread acceptance of a variety of systems.

Conventional rational medicine: doctrine, politics and economics.

Orthodox practitioners in the early 1800's were almost exclusively male, consisting of graduates of four medical schools, Harvard, Dartmouth, the College of Physicians and Surgeons in New York, and the University of Pennsylvania. The doctrine taught in the schools was in essence identical, and was formulated by Benjamin Rush, professor of medicine at Pennsylvania for 40 years from 1769-1813. During this time Pennsylvania graduated about three-fourths of all the educated physicians in this country. Rush had studied in Edinburgh with the Scotsmen William Cullen and John Brown. Rush's 40 years as America's foremost physician and professor of medicine left a lasting solidist imprint on American medical practice. One European observer in 1828 stated that many educated phsicians in the United States were "often illberal, intolerant, proud and conceited; they follow a peculiar theory and mode of practice, with little deviation, employing but few herbal remedies and suffering repeated failures."[15]

In terms of pathological doctrine, Rush claimed that the theoretical action of internal processes were only physiological, and could only be known by analogy with mechanical, chemical, or hydraulic processes. The physician starts with his eyes and by logic or by analogy draws conclusions about those internal, invisible vital processes within the organism. A detailed study of anatomy and physiology conducted almost exclusively on cadavers was the only acceptable path to knowledge of these vital internal processes. In terms of pharmacological doctrines, Rush claimed that physicians could analyze a remedy into its components, isolate the element which affected the organism and describe its action. Rush was adverse to

admit the existence of a medicine whose actions physicians could not explain. He criticized Hippocrates for prescribing too many specific remedies which "rendered medicine complex, useless, or fatal, in many instances."[16] Rush believed that the primary test of science, especially medical science, was to analyze and explain physical phenomena, and he was reluctant to admit ignorance in any realm of medicine.

Like Cullen, Brown and the other solidists, Rush recognized only two basic causes of disease and two basic types of medicine. Rush's mentor Brown had delineated "sthenic" diseases characterized by excess "excitement" for which he prescribed vomiting, sweating, purging, cold, and "a lowering diet;" and "asthenic" diseases characterized by too low "excitement" and for which he prescribed roast beef, opium, brandy, whisky wine and spirits. Rush saw a state of debility as a predisposing cause of disease and prescribed medicines against the state of debility and against the "irregular arterial actions" which follows the state. Against debility he prescribed medicines with "strong stimulting powers" which he placed in the three classes of diffusable, mixed and durable. Diffusable remedies included opium, alcohol, ether, mercury and "volatile salts." In one case he prescribed a gallon of wine within 48 hours, then ether, then opium, increasing the dose of opium as the debility intensified.[17] "Mixed stimuli" included quinine, garlic and mercury. "Durable stimuli" meant his concept of healthy food, including putting a woman suffering from miscarriages on a diet consisting only of salt meat during the last three months of her pregnancy.[18] For debility he also called for frequent bloodletting. For "excessive arterial action" he prescribed bloodletting, vomiting, purging and

medicines made from lead.

In practical terms, Rush's simple, arbitrary and highly theoretical view of medicine left no room for the curative powers of the body or nature. His views restricted the total number of hypothetically possible diseases, the number of symptoms which need be considered, and the number of medicines or therapies applied. Rush's proposed treatments greatly resembled one another, and he prescribed the same general course of treatment for almost all diseases of the North American continent, although he sometimes varied the order of application.

Rush's writings expressed his twin themes of the increasing simplicity and "factual" certainty of medicine. Under Rush's influence, the first half of the nineteenth century was the time of "heroic practice" characterized by extremely large doses of opium and mineral substancies such as mercury or lead. The physician's confidence in his medical theory, his distrust of the recuperative powers of the body, and his assumption that he knew everything important about the functioning of the body, which he assumed is subject only to ordinary physical and chemical laws, led to direct aggressive intervention to fight the evil disease entity and provided the roots of god-like heroic practice.

Rush's whole therapeutic approach as well as his attitude as a physician can be summed up by this story during Philadelphia's yellow fever epidemic of 1793:

> "The story is told that Rush was surrounded one day during the epidemic by a crowd in Kensington, north of Philadelphia. All implored him to come and treat their families.
>
> 'There were several hundred. Rush, without stepping down, threw back the top of his vehicle, and addressed the

> multitude "with a few conciliatory remarks." Then he cried out in a loud voice, "I treat my patients successfully by bloodletting and copious purging with calomel and jalap -- and I advise you, my good friends, to use the same remedies."
>
> "What?" called a voice from the crowd, "bleed and purge every one?"
>
> "Yes! said the doctor, "Bleed and purge all Kensington! Drive on, Ben!"[19]

Of course, mercury and lead poisoning have been known to debilitate and even kill and opium can be somewhat addictive. One county in Pennsylvania petitioned the state legislature for passage of a law prohibiting the use of mercury in the practice of medicine. In 1845, the legislative committee concluded that "a large amount of mischief has been done,"[20] but denied the petition because if orthodox physicians were deprived of all agents capable of doing harm they would have no medicines left. One detractor who founded a monthly journal to detail horror stories about this system called Rush's therapeutics "one of those great discoveries which are made from time to time for the depopulation of the earth."[21]

Advantages of Rush's system to physicians, though not necessarily to patients, are time and money. If medicine is simple and certain, and the same general course of treatment can be applied to almost any patient and any pathology, then the doctor does not need to take the time to study any case individually. Instead, the physician can spend his time much more lucratively by seeing more and more patients, and giving them basically the same treatment (bloodletting and the 19th century wonder drug calomel). Such an approach ignores one vital ingredient -- the concern of the patient. Ironically, rational medical practitioners did not thrive economically with

Rush's system of medicine. The excuse of the rational doctors was that the general public was ignorant and uneducated in true medical knowledge, and thus susceptile to quackery which was defined as any other form of medicine. Although the orthodox literature is full of such complaints, it seems that the public knew quite a bit about orthodox practice, and actively disliked it. Thus the rationals blamed their competition for their own lack of economic success and continued to ignore their own patients. Coulter clearly shows that much of the opposition to rational medicine came from a positive dislike of its therepeutic system in method and in medicine.

> "The botanical practitioners made rejection of mercurial medicines an article of faith, and it was the public revulsion at this type of practice which contributed to the popular support of the various 'irregular' sects and of the homeopaths.[22]

Thus the symbols for the orthodox physician in the first half of the 1800's were the lancet (for bloodletting), the knife (for surgery) and calomel (mercury medicine). Allopathic medical education reflected this orientation and concentrated only on the physical phenomena of anatomy, physiology, surgery and chemistry. Pharmacology was ignored as were botany and the wealth of medicinal remedies of the American Indians. Rush was opposed to botanicals, claiming that their effect was only psycho-somatic. Absolutely refusing to investigate the claims of Indians who could relieve stiff joints with an infusion of certain herbs in water, Rush stated: "I cannot help attributing the whole success of this remedy to the great heat of the water in which the herbs are boiled."[23] He continued: "We have no discoveries in the materia medica to hope for from the Indians in North America. It would be a reproach to our schools of physic if modern physicians were not more successful than the Indians, even in the treatment of their own diseases."[24]

Thus the entire medical knowledge of the Indians was dismissed from consideration and never even investigated by rational medicine. One European author stated that "while the country practitioner, Herbalists, Empirics, and Botanists use more than 700 different plant remedies, some even known in Europe, orthodox practitioners in America are ignorant of them."[25]

Naturopathic medicine.

Among the systems based on the medical knowledge of the Indians were the Thompsonians and the herb doctors. In true American entreprenurial fashion, Thompson patented his system, claimed it as his own, and sold the rights to practice. The Thompsonians operated their own infirmaries, drug stores and drug wholesale houses, boycotting firms which sold allopathic drugs. They held their own conventions and established their own state medical societies. By 1839 Thompson claimed 3 million followers, one sixth the American population.[26] The system was strongest in Ohio, where Thompson claimed one half the population as his constituents and even the orthodox practitioners conceded him one third,[27] and in the south, where it was particularly strong in Alabama, Tennessee, Indiana, Virginia and Mississippi. In 1835 the governor of Mississippi stated that one half his population depended on Thompsonian practitioners.[28] The Thompsonian approach was the medicine of the farmers and frontiersmen and the lower classes in the cities.

Herbalists such as the Indian doctors, root doctors, and steam doctors who were uneducated in any kind of medical school gave rise to botanical practice. A number of educated physicians, with a dislike for orthodox

medicine and with confidence in the traditional medical lore of the Indians and the folk-medicine of the common people, set up "botanical practice." The most famous of the early botanical physicians was Dr. Wooster Beach, who was awarded a gold medal by Louis Philippe of France in 1843, the seventh medal he was given by the kings of Europe. In reply, the orthodox Boston Medical and Surgical Journal said:

> "What has this gentleman accomplished in the domain of medical science, to be honored by the bounty of kings? Nothing. He is neither known to men of science in his own country, nor acknowledged by intelligent men in the city of his residence, to have claims of any kind upon the world on the score of superior sagacity or medical attainments. He has simply constructed a book which he calls a new system of medicine, but which is neither novel in it details, nor distinguished for originality of thought. Dr. Beach may be highly respectable as a citizen, pay his pew tax, take the Croton water, walk on the Battery with the air of Plato in the Academy, and comtemplate his own shadow from the steps of Castle Garden as the greatest reformer of the age -- and yet be as profoundly ignorant of the laws of disease as Louis Philippe is of medical merit in the United States."[29]

Beach termed his botanical approach medical reform. He was open to learning from all sources:

> "I have not thought it beneath me to converse with Root and Indian doctors, and every one who has professed to possess any valuable remedy, or any improved method of treating any disease. The hints and suggestions of experienced nurses and female practitioners have not escaped my notice."[30]

(Beach's comments imply the existence of a number of female practitioners, although few if any were practitioners of rational medicine.) In 1832, Beach started the "Reformed Medical Journal", whose first issue contained a criticism of the medical treatment of George Washington.

> "Think of a man being, within the brief space of little more than twelve hours, deprived of 80 or 90 ounces of blood; afterward swallowing two moderate American doses of calomel, which were accompanied by an injection; then five grains of

> calomel and five or six grains of emetic tartar; vapours of water and vinegar frequently inhaled; blisters applied to his extremities; a cataplasm of bran and vinegar applied to his throat, upon which a blister had already been fixed. Is it surprising that when thus treated, the afflicted general, after various ineffectual struggles for utterance, at length articulated a desire that he might be allowed to die without interruption!"[31]

Although educated botanical physicians ofter expressed a certain contempt for Thompsonian practitioners, the two systems, after recognizing their common dislike of orthodox medicine and their love of herbal and vegetable remedies, eventually merged into the eclectic school. Benjamin Waterhouse, the country's most famous botanist, gave the Thompsonians his warm support, and thus helped bring about the merger. Waterhouse stated:

> I am, indeed, so disgusted with learned quackery that I take some interest in honest, humane and strong-minded empiricism."

The eclectic school, an original American naturopathic approach to medicine, formed its own societies, hospitals and schools. In 1872 the National Eclectic Medical Society was formed. Its most well known school was the Cincinnati Eclectic Medical Institute, which graduated its last class in 1939-1940. The Eclectic Medical School of Worcester, Massachusetts was later taken over by allopathic practitioners in the early 20th century and is now the University of Massachusetts Medical School. By the 1880's there were over 10,000 eclectic practitioners. After the Civil War Thompsonianism disappeared as an independent force, but eclectic naturopathy remained a part of American medicine until well into the twentieth century. And before the Civil War the major threat to orthodox practitioners came from the Thompsonians, the botanics and the eclectic naturopaths themselves.

Homeopathic medicine.

As the botanics merged into the eclectic naturopathic school with its own colleges, hospitals and dispensaries, so the homeopaths evolved into the new school with its own hospitals, colleges and dispensaries. Although the eclectics remained popular, after the Civil War, according to Coulter, the new school gradually provided the most provocative intellectual challenge to rational medicine. Homeopathy's original American practitioners were German immigrants and the first homeopathic school in America conducted its curriculum in German. Although the system is based on different principles than allopathy, particularly in its use of the ancient law of similars, it proceeds in a rational way, evolving its own medical theories. Homeopathy's rational intellectual theories appealed to much of the intelligentsia, particularly in Pennsylvania, New York and Massachusetts. At one time it was extremely popular among the Boston Bramins. Many of its more vocal adherents were also radical Republicans, so that homeopathy's fortunes rose after the Union victory in the Civil War. Homeopathy received wide support in the press, especially among the editorial writers of the major dailies of the east coast.

Homeopathy was originally conceived by the German medical genius Samuel Hahnemann. Hahnemann was devoted to keeping himself healthy, and thus followed a strick regimen of regular exercise and healthy food. He was also a rigidly puritanical Christian, and his system is permeated by the same fanatical rational intolerance of allopathic medicine that allopathy expressed for homeopathy. He was born in the city of Meissen, where the paths of alchemy and homeopathy crossed. Dresden China was originated by

a Messein alchemist as a distraction in his search for gold, and its original home was near the rich clay beds of Meissen. Perhaps there was some unknown cross-fertilization with alchemy. However, "following an obvious rigidity in the master himself, homeopathy became a religion -- an anti-scientific fundamentalist sort of Christianity."[33]

Therapeutically homeopathy differed greatly from orthodox medicine, especially in its individuation of treatment and in its recommendation of infinitesimally small doses of medicine derived mainly from herbal and vegetable substances. Perhaps patients actually pereferred this sort of medicine to the simple factual certainty of mercury or lead poisoning or opium addiction. Even if it was only a placebo which relied on the body's natural healing powers, it was a great improvement. However, orthodox medicine reacted to homeopathy's popularity by denouncing it as "a European scam intended to hoodwink backwoods Americans."[34]

Indeed, both homeopathy and naturopathy received similar treatment from orthodox plysicians. In 1898 William James gave eloquent testimony to the persistent refusal of medical orthodoxy to investigate homeopathic experience when he addressed the Massachusetts state legislature to protest against a bill banning persons other than M.D.'s from practicing psychological healing. This address has not been published in any of the collections of James's work.

> "Some of these therapeutic methods arose inside of the regular profession, others outside of it. In all cases they have appealed to experience for their credentials. But experience in medicine seems to be an exceedingly difficult thing. Take homeopathy, for instance, now nearly a century old. An enormous mass of experience, both of homeopathic doctors and their patients, is invoked in favor of the efficacy of these remedies and doses. But the regular profession stands firm in its belief that such

> experience is worthless and that the whole history is one of quackery and delusion. In spite of the rival schools appealing to experience, their conflict is much more like that of two philosophers or two theologies. Your experience, says one side to the other simply isn't fit to count.
>
> "So we have great schools of medical practice, each with its well satisfied adherents, living on in absolute ignorance of each other and of each other's experience. How many of the graduates, recent or early, of the Harvard Medical School, have spent 24 hours of their lives in experimentally testing homeopathic remedies or seeing them tested? Probably not 10 in the whole Commonwealth . . . 'Of such experience as that', they say, 'give me ignorance rather than knowledge.' And the club opinion of the Massachusetts Medical Society pats them on the head and backs them up . . . Even the very best type (of mind) is partly blind. There are methods which it cannot bring itself to use. The blindness of a type of mind is not diminished when those who have it band themselves together in a corporate profession. By just as much as they hold each other up to a high standard in certain lines and force each other to be thorough and conscientious there, by just so much along the other lines do they not only permit but even compel each other to be shallow. When I was a medical student I feel sure that any one of us would have been ashamed to be caught looking into a homeopathic book by a professor. We had to sneer at homeopathy by word or command. Such was the school opinion at that time, and I imagine that similar encouragements to superficiality in various directions exist in the medical schools of today. . ."[35]

Competition and the politics of money.

Coulter points out what became a primary concern of orthodox doctors: with fewer patients coming to partake of their "scientific medicine" they made less money. Coulter then shows that first the botanical then the homeopathic physicians as individuals made more money than did rational practitioners. Coulter's work is especially important for its emphasis on the economic aspects of medicine.

> Historical accounts of medical ideas and practice are rather one-dimensional in that, while they may analyze the transmission of ideas from generation to generation, they rarely if ever take into account the economic determinants and consequences of these ideas. But the economic aspect may be

> fundamental for the physician's acceptance or rejection of some innovation. Hence, it may powerfully affect the course of medical thought.
>
> We would not deny that the development of medicine is affected to some extent by purely scientific endeavor. While scientific considerations play their role at all times, the physician is an economic unit competing with other economic units, and it also cannot be denied that economic pressures of various kinds must influence the practice of medicine. Thus, while medical practice is affected by medical theory, medical theory is in turn affected by the economics of medical practice, and to a far greater extent than is commonly realized. . . .
>
> Finally, we have attempted to elucidate the much controverted issue of the role of scientific method in medical practice. We find that the economic constraints mentioned above have an important bearing on the movement of medical thought and on the relationship between medical thought and what is known as "scientific" method. In a word, we reject the idea that therapeutic theory develops, as it were, in a straight line from some 'primitive' or 'mystical' beginnings steadily upward to a plateau at which the practice becomes a 'science.' This is the assumption underlying most medical history to date, and it has been productive of much inferior thinking and writing. It is wrong because it fails to take into account the economic dimension.[36]

In Planet Medicine, Richard Grossinger discusses this writing out of our medical history in even more poignant terms:

> Nowadays people shrug and smile if one suggests that homeopathy ever represented enough of a threat to bring the powerful AMA into being. How quickly whole stages of history disappear! Major institutions collapse, and a generation is born into a different landscape. . . . The remains of the old homeopathic 'empire' are scattered throughout the whole of the United States, especially in the eastern half. The hospitals and other buildings have been taken over by other parties. The patients have drifted to other doctors or back into the silence of their untended conditions. . . . Homeopathy is a blink of the eye away."[37]

The AMA: a business guild.

To counteract the growing trend away from rational medicine, orthodox physicians formed the American Medical Associaton as their own business guild to protect their declining economic interests. The AMA's

stated long term goal was to improve medical education, but its short term goal was suppression of homeopathy and naturopathy. In its original charter, a fascinating statement of intent to destroy all other forms of medicine, the AMA withheld membership from any state or local association which allowed any homeopathic or naturopathic members, banned any discussion of their medical theories in AMA journals, threatened expulsion on "ethical" grounds for any doctor who consulted with them and expelled any allopaths married to homeopaths or naturopaths. (Again we find reference to the existence of a number of female practitioners in the ranks of non-allopathic physicians.) Accepting no professional responsibility for a substantial part of the public's dislike of their system, the AMA denied the validity of all other systems, labelled them as quackery, and began a propaganda campaign to convince the public of its charge.

In so doing, the AMA conveniently sidestepped any responsibility to investigate the medical successes of the competing system. Possibly for fear of putting their own system to such tests, no studies were done to examine the medical successes of the naturopaths and homeopaths, although laboratory "studies" were conducted to prove that such successes could not possibly have taken place. Rush and others even went as far as to say that one should not judge medical systems on their success in curing people but on the rationality of their medical theories. In effect, naturopathy was dismissed because it came from the "inferior" Indians and homeopathy was dismissed because it came from German immigrants and was not "rational."

The public did not qute buy this approach. The AMA then decided that the key to acceptance of rational doctors was "improved medical

education." Here they borrowed the simple tools of fitness, nutrition, hygiene and diet from the botanics and homeopaths while ignoring the core of these other systems. This minor adaptation helped, because it called into question some of the more egregious aspects of Rush's doctrines.

The Civil War and the large drug companies.

However, one very important historical event intervened, the Civil War. The Civil War led to much more extensive use of surgery as well as the rapid expansion of the fledgling pharmaceutical firms whose main job was to supply the Union Army with drugs. Among the most popular drugs was opium and its derivative morphine. (During this time the European powers, led by Britain and eventually including America, were fighting a series of opium wars designed to make all China an open market for the selling of opium by Europeans. The growth of opium as a major drug of rational medicine paralled the European attempt to turn China, against the decrees of the emperor, into a nation of addicts, and thus a stable market for the highly profitable sale of opium.) An official U.S. government study estimated that at least 10% of the American population were morphine addicts some five years after the war. The most important aspect of the war's aftermath was the newfound economic power of such companies as E.R. Squibb, Parke-Davis and Eli Lilly. Although they first marketed only "ethical" drugs for professional use, these companies soon found this too narrow a field. In the 1870's these companies moved into the "patent" medicine field dominated by McKesson and Robbins. In 1876 Frederick Stearns circumvented the ethical stipulations of the medical associations and introduced the "new idea," a line of "popular, non-secret, family

medicines" which were termed "proprietaries" and were designated as specific cures for one or more diseases. By 1880 there were 2700 of these compounds on the market, by 1885 there were 8000 and by 1916 there were about 39,000.[38]

> "The flooding of medical practice by these "proprietaries" represented the final conquest of the medical profession by the patent-medicine industry. While initially much fanfare was made of the fact that the ingredients of proprietaries were disclosed, a number of companies refused to follow the example of Frederick Stearns and Parke-Davis, and many proprietaries were as mysterious about their ingredients as the classic patent medicines.
>
> "In any case, the "pro forma" disclosure of ingredients was not a significant factor in the scoio-economic context of the use of these medicines. The proprietary craze was merely the newest avatar of the profession's unrelenting desire to simplify medical practice. The compounding of medicines was centralized, and the physician was spared the intellectual effort required to obtain knowledge of his principal means of cure. Instead of learning the powers or properties of medicinal drugs, he had only to memorize the names of a series of specific compounds and prescribe them for the disease-names of his patients."[39]

During the 1870's and 1880's, the time of great expansion of the large drug companies, homeopaths were:

> "at the height of their success doing three to seven times the business of allopaths by region, with the editorial support of the Detroit Daily Tribune and the New York Times, the backing of powerful politicians and business interests, and a strong lobby in the Republican Party. During the yellow fever epidemic of the 1870's in the South, homeopaths not only used microdose successfully, but recommended specific sanitary corrections in the canals, sewage systems, dry wells, and bogs around Savannah and New Orleans. Homeopaths were appointed to state medical boards and federal pension examination boards. They were supported by government funds and covered by insurance companies. There were hundreds of homeopathic hospitals, clinics, insane asylums, nursing homes, orphanages, and schools.[40]

Coulter sums up the economic issue:

> "If any proof were needed of the public's affection for homeopathy it was to be found in the continuing affluence of the New School practictioners in an era when regular physicians complained that the profession was overcrowded and the ordinary practitioner living on a bare subsistence level. An 1889 article in the North American Review stated that for every doctor qualified to practice two were unneeded. A homeopath at this time estimated that 20% of the allopathic graduating class would abandon medicine after five years, while ten years after graduation 50% of the class would have left the profession. Far from joining this chorus, the homeopaths exulted that there was plenty of work for qualified men and they themselves had more business than they could handle. They called for a general expansion of the numbers of their practitioners."[41]

The deadly alliance: drug money and the AMA.

With such powerful public support why did homeopathy and naturopathy decline so thoroughly? There are a number of reasons. First, these systems forced allopathic medicine to change. Mark Twain sums up this situation in a celebrated Harper's Magazine article published in 1890, where he discussed an old allopathic medical text employed by a Confederate physician during the Civil War.

> "When you reflect that your own father had to take such medicines as the above, and that you would be taking them today yourself, but for the introduction of homeopathy, which forced the old school doctor to stir around and learn something of a rational nature about his business, you may honestly feel grateful that homeopathy survived the attempts of the allopaths to destroy it, even though you may never employ any physician but an allopath while you live."[42]

For a specific example there is the cholera epidemic of 1849 in the south which had

> "an enormous effect in promoting medical change. The medical establishment admitted freely that it had no cure for this condition. Hahnemann had used Camphor early in the disease for its similar alternating diarrhea and constipation. The American school tried this remedy with ostensible success. In Cincinnati, homeopaths claimed a 97 per cent cure rate in over a thousand cases and published a daily list of their patients in

> the newspaper, giving the names and addresses of those who were cured and those who died. Bleeding was of little use, though it remained the allopathic standby. Non-homeopathic doctors had a hard time believing the Camphor results. Elaborate explanatory hypotheses were concocted: late-acting allopathic remedies, hypnotism, and power of suggestion or even the wrongness of their own techniques, hence the advantage of no treatment at all. Perhaps the commonest interpretation was that the unusually high cure rate of the homeopaths came not from their medicines but their rules of hygiene and diet. This belief literally changed allopathy from within, without turning it into homeopathy."[43]

Second, each approach had its own internal weaknesses, either political or philosophical. For instance, homeopathy's major internal weakness was its uncompromisingly rigid view of medicine. Naturopathy was branded "Indian medicine" at a time when the wars of extermination were inflicted on the Indians of the western frontier. However, their most important weaknesses were political: money and organization. Although individually prosperous and popular with the public, these practitioners never formed strong guilds, and thus fell prey to the less popular but highly organized allopathic guild armed with a huge infusion of money from the large drug companies.

Third, these approaches were effectively buried by the growing economic power of the large drug companies. Greatly threatened by the non-drug remedies of the eclectic naturopaths, the new school homeopaths, and the osteopaths, chiropractors and other manipulators, the large drug companies entered into an alliance with the AMA to put their competitors out of business. Although the AMA initially opposed the drug companies as additional competitors, they later accepted the proferred alliance. Indeed when the New York State Medical Society was considering abolishing the "ethical consultation ban" the leader of the opposing physicians was E.R.

Squibb. These drug companies not only funded allopathic journals through their advertising budgets, they also founded presumably independent medical journals "which were actually the mouthpieces of one or another pharmaceutical manufacturers."[44] Parke-Davis alone owned New Preparations, Detroit Medical Journal, American Lancet, Therapeutic Gazette, Medical Age, and Medicine. Other drug companies quickly followed suit. Even the supposedly independent journals were largely supported by drug company advertising, including JAMA, the Journal of the American Medical Association. A review of JAMA in 1906 stated:

> ". . . practically all medical journals carry advertisements of proprietary remedies. In one journal which is supposed to exhibit the highest idea in the ethical conduct of medical journalism, twenty out of the thirty-six advertising pages were devoted to advertisements of proprietary articles; in another of high grade nine out of twenty-five pages were used in the same way.
>
> ". . . a large proportion of medical journals have a department devoted to advertisements under the guise of reading notices, commercial news, therapeutic notes, etc. No pretense is made that these are genuine scientific articles, and it is tacitly understood that these columns are under the control of the advertisers and that the articles are disguised advertisements. . .[45]

As Coulter phrased it:

> ". . . By 1899 advertising revenue had climbed to $33,760. The 1903 figure was $88,533, and by 1909 the Journal was earning $150,000 a year for the Association, having become its major source of income. Thus, in the end of the century the American Medical Association found a way to resolve its ethical differences with the drug industry -- to the profit of both parties. The increased income, in turn, was used for a final campaign against the New School, and by 1910 the American Medial Association had absolute control over the future of American medicine."[46]

The suppression of naturopathy and homeopathy.

The suppression of homeopathy and naturopathy was accomplished in two major stages. Both systems were highly vulnerable to political attack because their numerous successful practictioners disdained political organization in favor of treating the sick and making a living. In 1899 the leadership of the AMA passed to a clever politician, Dr. George Simons. A convert from homeopathy, Dr. Simons was also editor of JAMA until 1924. Going against the grain he proclaimed the end of medical sectarianism and welcomed all sectarian practitioners into the AMA. Thus the AMA gained power over both homeopathic and naturopathic medicine:

> "Meanwhile, mainstream medicine, with its organizing body, the AMA, and the JAMA, had a new authority in relation to the secretarian medical schools. Having taken the sectarians into their mainstream, they now could claim a right to have their say in such medical education. They represented the new syncretist medicine, and they sought to develop its standards and criteria for practice. As long as there were two medical traditions with two theories, the homeopaths were immune to interference from the allopaths, immune legally unless they were declared to be quacks by a recognized government scientific body. When a significant proportion of homeopaths accepted general nonsectarian medicine -- many of them innocently, thinking it was an inroad for homeopathy to be heard and tested in wider circles -- the basis for a separate homeopathic training had disappeared.
>
> "In preparation for grading of medical schools, the AMA developed a series of criteria for a good medical facility. These were terribly biased against homeopathy, for they required nonpracticing research doctors (a contradiction in homeopathic terms), extensive laboratories (meaning pharmaceutical laboratories), and a balanced curriculum. The balanced curriculum was a spider's final web from which homeopathy could not extricate itself."[47]

The term "balanced curriculum" was a cover to limit the curriculum to the "basic sciences" of allopathy, putting the emphasis entirely on the mechanical physical interpretation of the body found in anatomy and

physiology. The various forms of chemistry limited the investigation of useful medicines to those produced in the laboratories of the large drug companies. Thus the AMA finally began to accomplish the explicit intent of its charter which called for elimination of all competing forms of medicine in America. One of the leaders of the AMA's drive, Dr. McCormack, stated: "We must admit that we have never fought the homeopath on matters of principal; we fought him because he came into the community and got the business."[48]

The Death Knell: The Flexner Report.

Then the AMA struck out at the weakest link, the homeopathic and naturopathic medical schools. These schools were under-endowed (20 of the 22 homeopathic schools were supported entirely by student fees) varied greatly in quality, and were far too numerous. In 1904 the country was saturated with medical schools and "professional congestion was at a highwater mark."[49] Furthermore, graduating students found the AMA's newly instituted licensing examination, acted into law by state legislatures under the guise of "raising" the quality of medical education, was heavily weighted toward the mainstay of the allopathic curriculum, the "basic sciences." The AMA's next step was to evaluate all the medical schools, allopathic, homeopathic and naturopathic, under the guise of its new claim to represent the whole profession. However the criteria established for this evaluation was almost completely weighted in favor of allopathic medicine.

Since many schools complained about their ratings, the AMA enlisted a supposedly outside objective body, the Carnegie Endowment for the Advancement of Teaching, to lend its support and prestige to its finding.

From this collaboration emerged the famous, "Flexner Report," written by Abraham Flexner with extensive guidance from the AMA's Nathan Colwell. According to the AMA itself, Colwell "provided far more guidance in this famous survey than is generally known."[50] As Coulter points out:

> "The findings of the Flexner Report, and the ongoing evaluation of medical schools by the American Medical Association were soon accepted by state examining boards which decided to bar the examination to graduates of schools receiving a low rating -- regardless of the candidate's own knowledge or proficiency. The refusal of examining boards to admit the graduates of schools which the AMA held in disfavor was the death-knell for these schools, and in this way the AMA acquired a whip hand over the whole medical educational system, not only allopathic, but homeopathic and eclectic as well, a power which it had been seeking for decades. Furthermore, the private benefactors of medical education, in particular, Rockefeller and Carnegie, followed these evaluations in their allocation of funds, encouraging the schools which had the AMA's approval and refusing funds to the others."[51]

In effect, the report was used to delcare allopathic ideology as "scientific" and to insure that the vast funds of Rockefeller and Carnegie would go only to allopathic schools. It is great irony that vast amounts of money from Rockefeller, who went only to homeopaths, and Carnegie, who went only to naturopaths, should be used for the downfall of these systems of medicine. Between 1919 and 1921 some $45 million was earmarked for Yale, John Hopkins, Vanderbilt and the University of Chicago. In contrast in 1921 the total endowment of Hahnemann Medical College of Chicago was $537,000 and Hahnemann Medical College of Philadelphia was $325,000.[52]

Gradually these schools went out of business or were taken over. First the "basic sciences" fell into allopathic hands, then pressure was put on the more homeopathic courses which were watered down, dropped, converted,

made into electives, or subsumed into medical history courses. As the schools declined, so did the number of practitioners. Other practitioners were denied the legal right to practice. Under pressure from state legislatures, numerous naturopathic and homeopathic schools were converted into state allopathic medical schools. By 1930, only one homeopathic and one naturopathic school still existed, and they both closed before 1940.

Thus in a few short years the AMA, heavily funded by the large drug companies, put two competing schools of medicine almost completely out of business. A single school of therapeutics, with the help of a powerful political lobby (the AMA) and the funding of powerful economic interests (the drug companies), had "acquired on specious scientific grounds virtual monolithic control over the whole medical spectrum."[53]

The survivors: Osteopathy and Chiropractic.

Only two forms of indigenous American traditional medicine, osteopathy and chiropractic, survied this onslaught. Both took form in the later part of the nineteenth century, and did not constitute a major threat to the AMA and the drug companies until after the effective destruction of homeopathy and naturopathy. Chiropractic began in the midwest in Iowa with the work of D. D. Palmer. Osteopathy also flourished in the midwest in Missouri although it was originated by a Virginia physician, Dr. Andrew Still, and has since been tentatively accepted as a facet of rational medicine. Both of these disciplines began about the time some of the Chinese railroad workers arrived in these areas. These disciplines may in part have come from Chinese "bone doctors," who were specialists in manipulation and bone

setting. Chiropractic and osteopathy may also owe something to European tradition, such as the English "bone setters," or the Swedish massage therapists, or perhaps to some indigenous Native American tradition.

The medical and political history of chiropractic and osteopathy is also marked by the political and economic repression of these disciplines by the AMA and its political lobbies. After the Flexner Report, the well financed political lobbies of the AMA pressured state legislatures to pass laws banning or resricting all other medical professions. State funding for non-rational, non-allopathic medical schools was discontinued, and these schools were taken over by rational, allopathic medicine. Health insurance coverage, such as the AMA's own Blue Cross/Blue Shield Company, was available only for allopathic doctors and hospitals. Again the AMA's extensive propaganda machine, funded by the large drug companies, labeled all other forms of medicine as "unscientific quackery."

The AMA, having put its two major competitors out of business, ignored manipultive medicine until osteopaths, chiropractics and other manipultive practitioners began making a fair amount of money. Then the AMA's lobbies, again funded by the large drug companies, sprang into action. The fledgling chiropractic profession set up its own schools and associations. It refused to knuckle under or to allow the AMA to put it out of business or control it's schools. When the AMA went to the state legislature, as they did in California, the chiropractors went to the state wide public initiative,which overides legislative action. The chiropractic initiative was passed, and the AMA could restrict but not suppress chiropractic by legislative means. Chiropractors could not prescribe drugs, but could

practice "adjustments" and give consultation on food supplements. However, chiropractic schools began to take on more and more of the allopathic basic science curriculum. And their own chiropractic associations were modeled after the successful political lobby of the AMA.

Partly to counter the growth of chiropractic, the AMA offered its standard deal to the growing osteopathic profession, using as its excuse that osteopathy's founder, Andrew Still, was an M.D. The acceptance of osteopathy as an AMA approved counter to chiropractic and as a somewhat questionable form of rational medicine followed the same patterns as the earlier acceptance of homeopathy and naturopathy. In California, osteopaths could become M.D.'s and prescribe drugs and practice surgery. Many took this more lucrative route, so much of the powerful art of osteopathic manipulaton has passed away. Osteopathic schools adopted allopathic curriculum and osteopathic manipulation was de-emphasized. The large osteopathic hospital in San Francisco became an allopathic hospital. There are still a few osteopaths who are excellent practitioners of the ancient art of manipulation, and there may be a resurgence of this unique American profession, in spite of the temporary triumph of the AMA's "political medicine."

Holistic health: an expanded approach.

In spite of all this powerful economic, political and social oppression, and probably because of the numerous expensive failures of rational allopathic medicine, we find today a new and different attitude and momentum toward a burgeoning holistic health movement. Partly it is a resurgence of the previously suppressed western forms; partly an

introduction to the traditional medicine of other cultures, especially from India, China and Japan; partly the emergence of an expanded attitude among Americans. Grossinger states: "Alternative medicine today is a fulfillment and florescence of the original multi-cultural diversity."[54] Kenneth Pelletier has both advocated and documented this approach in Mind as Healer, Mind as Slayer, which is a holistic approach to preventing stress disorders, and Holistic Medicine, which he sees as covering the field from stress to optimum health.

Perhaps the most socially effective arguments for such approaches have come from a physician and an educator, the youngest man ever to lead the prestigious Massachusetts General Hospital, and former president of the Rockefeller Foundation, Dr. John Knowles. Dr. Knowles invited twenty doctors, economists, political and social scientists to write on health and medical care in the United States today. The result is Doing Better and Feeling Worse, a title which reflects the general sense and feeling of the articles. His own article, The Responsibility of the Individual, deals in a no-nonsense way with the issue of personal responsibility for our own health. It is a powerful statement about individual rights and responsibilities, and the process of health and healing. Without neglecting corporate or socio-political responsibility, he points us toward those personal habits, those classical Rules of Health, necessary to maintain good health -- the use of simple, predictable rules for sleep, exercise, diet, weight, sexual activity, alcohol and smoking. Yet he also stresses that we need to become involved in social policy to improve education, employment, human rights, and economic opportunities, and to develop successful, accessible health

services for all.[55]

Dr. Tom Ferguson, M.D., a graduate of Yale Medical School, is editor of one of the best of the burgeoning self-help guides and books: Medical Self-Care: Access to Health Tools is a quarterly journal and also a new book. Its format is that of the Whole Earth Catalogue, which provides an access to various "tools." Ferguson's work is extremely important, as he reviews the available literature, as well as provides much other useful information. As Dr. Ferguson, puts it, we are seeing "a quiet revolution going on. It is taking many aspects of medical care out of the ivory towers and stainless steel examining rooms. It is putting health tools into the hands of the average consumer".[56] For instance, the movement for natural childbirth and home delivery became so powerful that many hospitals have revamped their delivery room policies to include natural childbirth, the presence of the father, and a homelike atmosphere. Why the hospitals changed their policies was simple -- they were losing too much money. Their delivery rooms were emptying as more people preferred natural childbirth and home delivery.

Although the actual medical field has been outwardly slow to respond, the allied health fields, such as nursing, have already begun a movement towards providing health care for the whole person. Patricia Anne Randolph Flynn, a nurse practitioner and former assistant professor at State University of New York at Binghamton, has compiled and written a guide for holistic health nursing, Holistic Health: The Art and Science of Care. She has also edited a very thorough journal of the philosophy of holistic health. The Healing Continuum is a compendium of articles from Hippocrates and

Plato to Dr. John Knowles and Dr. Tom Ferguson.

A growing interest.

The awareness, interest and active participation in self health care among a growing number of the population is becoming evident on a number of fronts. For instance, my community education class at the College of Marin in Acupressure/Applied Kinesiology: Muscle Testing and Balancing has a limit of 30 students. Each semester it has been offered, there were close to 200 people on the waiting list, with at least 150 people showing up on opening night in a room built for 30. My own experience is not unusual. The other traditional healing disciplines are expanding, and ones that were "lost" are coming back.

In the last five years, within a fifty-mile radius of the Bay Area, a number of new medical schools have sprung up: two new colleges of chiropractic, three colleges of traditional Chinese medicine and acupuncture, and one college of naturopathic medicine. In southern California, there is a new college of osteopathic medicine. In addition, there are schools like the North American College of Natural Health Sciences, which offers certificates in nutrition, holistic health, counseling, and massage therapy. There are also a number of schools or classes in shiatsu, jin shin do, and jin shin jytsu, as well as other disciplines. Numerous schools (and even some masters) teach yoga, t'ai chi, kung fu, karate, judo, ju-jitsu and akido, as well as classes in western movement disciplines such as Alexander and Feldenkrais. Enough people are actively interested and participating to support these types of holistic and traditional approaches.

Even in the state colleges there are approved programs. At San

Francisco State's Physical Sciences Department, Dr. Angelo Longo teaches Holistic Health, Nutrition, Acupuncture and Traditional Chinese Medicine. At the same time, she is a state certified acupuncturist and studying as an apprentice to her Chinese "master" (there is no good English translation for the Chinese word Sifu), a well known local traditional Chinese doctor. At John F. Kennedy University, I teach Kinetic Education and Applied Kinesiology in the first approved Master's Degree program in Holistic Health Education in this country. Here we are working on developing many of the new models that will be the basis for Holistic Health Education programs in this country. One of the main ingredients lacking in this soup is both a national and profesional policy of cooperation among the many different health care providers.

Our rich heritage.

Thus our present day situation is a confluence of multiple scenarios. We have a very rich and diverse medical and therapeutic heritage. However, political, economic, social and cultural factors have led us to a divided medical legacy. Instead of professional cooperation and mutual respect among allied health services each affecting our body/mind continuum from a different perspective with different approaches, we have cut-throat competition, dominance and suppression. One group, through political means, has come to control the general tone of our policy, especially in legal and economic areas. Nevertheless, the other approaches have managed to stay alive, none of them flourishing, some of them emaciated and near death. Added to our indigenous systems come various oriental approaches, the traditional medicine of large Asiatic communities.

Regionally, these communities are located primarily on the west coast, and also in major eastern cities like New York and Boston. Added to this is our national opening to the east, following a pattern since World War II, and culminating in open contact with China sparked by Nixon and Carter. Also, a number of westerners have spent some time in the east, learning the martial, medical and meditational arts of India, China, Tibet, Burma, and Japan. This wave of new information now meets a populace dissatisfied with the increasingly expensive and not always successful forays of the dominant medical approach. In the same populace there is a huge upsurge of interest in health, especially in two areas largely unexamined by rational medicine, nutrition and exercise. Therefore many people are now turning to eastern or "non-conventional" western systems and doctors for their health needs.

This huge upsurge in interest in holistic health, in stress reduction, in acupressure and in related systems of movement and medicine may make it quite difficult for continued suppression. Ironically, we may find not only the AMA but also the chiropractic lobbies trying to suppress other health practitioners. If there is renewed and vigorous suppression, from any source, our nation will be the poorer, and our health as a people greatly endangered. The only patriotic solution is co-operation, a cooperative health care alliance among previous competitiors, for a stronger, fitter more healthy America.

Ivan Illich applies this perspective on a world level:

> "In several nations the public is now ready for a review of its health-care system. Although there is a serious danger that the forthcoming debate will reinforce the present frustrating medicalization of life, the debate could still become fruitful if

attention were focused on medical nemesis, if the recovery of personal responsibility for health care were made the central issue, and if limiations on professional monopolies were made the major goal of legislation."

"The level of public health corresponds to the degree to which the means and responsibility for coping with illness are distributed among the total population. . ."[57]

"A world of optimal and widespread health is obviously a world of minimal and only occasional medical intervention. Healthy people are those who live in healthy homes on a healthy diet in an environment fit for birth, growth, work, healing, and dying; they are sustained by a culture that enhances the conscious acceptance of limits to population, of aging, of incomplete recovery and ever-imminent death. Healthy people need minimal bureaucratic interference to mate, give birth, share the human condition, and die."

"Man's consciously lived fragility, individuality and relatedness make the experience of pain, of sickness, and of death an integral part of his life. The ability to cope with this trio autonomously is fundamental to his health. As he becomes dependent on the management of his intimacy, he renounces his autonomy and his health must decline. The true miracle of modern medicine is diabolical. It consists of making not only individuals but whole populations survive on inhumanly low levels of personal health. Medical nemesis is the negative feedback of a social organization that set out to improve and equalize the opportunity for each man to cope in autonomy and ended by destroying it."[58]

## Conclusion

Hopefully this exposition of American medical history will shed some light on our present situation. As we have seen, there are numerous parallels between the state of medicine today and the state of medicine in the nineteenth century, as well as between the history of medicine then and the potential history of medicine today. The themes that surface in the story of rational medicine in 19th century America are the same themes we find in the rational approach to the academic disciplines, education, physical education, philosophy, history, science and religion in the west. The story of

the rational western paradigm's effect on medicine, with its economic and political implications, is also remarkably similar to the story of the rational west's effect on other peoples, cultures, sciences and religions. Approaches other than the rational are first put to the sword, then written almost out of existence by the pen. Our minds have been split from our bodies, our awareness from the world around us, and our culture from other cultures.

Nowhere in the dominant rational medical system do we perceive any awareness of the body/mind continuum. Indeed, rational medicine as well as the large drug companies actively discourage such a concept, for its very implementation, with a complementary call for self help and self responsibility, directly threaten not only their privileged positions but also their huge profits. However, there are hints of the body/mind continuum in some western therapeutic systems such as homeopathy, naturopathy, chiropractic and osteopathy. With the exeption of naturopathy, all these systems claim to have originated from an individual founder. The phenomenon of the ego of the single founding father has played a very important role, as we can see in the example of Samuel Hahnemann's influence, both beneficial and detrimental, on homeopathy. So to explore western approximations of a body/mind continuum we need to turn to a few systems of movement and therapy which were derived by individuals and suffused with their personal strengths and weaknesses.

## CHAPTER VII

## MODERN TIMES IN THE WEST

F.M. ALEXANDER

One Western Style of T'ai Chi

Nobel Prize Speech

The Cadaver Approach

One Way Among Many

John Dewey's Commentary

MOSHE FELDENKRAIS

Judo and Physics

Kinetic Crown of the Senses

WILHELM REICH

Pulsing Movement

Free Flowing Movement

ALEXANDER LOWEN

CONCLUSION

# CHAPTER VII

## MODERN TIMES IN THE WEST

> Education is the only sure method which mankind possesses for directing its own course. But we have been involved in a vicious circle. Without knowledge of what constitutes a truly normal and healthy psycho-physical life, our professed education is likely to be mis-education.[1]
>
> - John Dewey

Having examined a number of the classical cultures, it is now time to look at some western systems which represent strands of thought and therapy which point to alternatives to our predominant Newtonian view of the universe. Although indigenous, these systems show a number of parallels to the eastern systems either by direct influence or by discovery of similar principles. In spite of their suggestiveness in terms of the body/mind continuum, we will see they have not completely extricated themselves from the dualistic point of view.

Each system is the work of an individual who developed his own personal system of therapy. Each of these founding fathers presents his system as emanating from the creative genius of his own ego. Here is a distinctly western phenomenon. Originators from other cultures usually claim to collect, codify, synthesize or standardize the wisdom of their own cultural heritage, using this wisdom as a base from which to proceed. In the west, founders tend to ignore or deny the existence of cultural antecedents or collective widsom. In other words, their systems have no history, no precedent, no root in the past of humanity's wisdom and experience. Dependent on the god like gift of the founder's genius, each system is then

implicitely or explicitely stamped with the founder's own idiosyncrasies and internal and external imbalances. A cult of personality then grows up around each system which eventually takes on some of the characteristics of a religion. However, this egotistical approach has one practical advantage: practitioners can claim to be teaching or practicing Feldenkrais or Richein work, and thus avoid the legal penalties for practicing medicine without a license. Let us now examine four western systems whose existence implies a limited western awareness of the body/mind continuum.

## F. M. ALEXANDER

In the early twentieth century there is the work of F. M. Alexander, who pioneered the Alexander technique which so influenced such luminaries as John Dewey, Aldous Huxley, Fritz Perls, and Bernard Shaw. Huxley even went so far as to call Alexander the true father in western culture of the "non-verbal humanities."[2] In Resurrection of the Body and other books, and especially in his teaching, Alexander presented a version of the path of integration of body and mind. He based his version on the relationships between the torso, neck and head, and especially concentrated on the neck and head. He prescribed then, a three-fold pattern:

> "1) Let the neck be free (which means merely to see that you do not increase the muscle tension of the neck in any act); 2) Let the head go forward and up (which means merely to see that you do not tense the neck muscles by pulling the head back or down in any act); 3) Let the torso lengthen and widen out (which means merely to see that you do not shorten and narrow the back by arching the spine)."[3]

Alexander summarized these directions as "all together one after another."[4] However, he also used creative imagination (akin to Tibetan visualization),

as his central organizing principle. One could establish a pattern of dynamic relationships of parts of the body with creative imagination itself. Alexander dealt essentially with posture, posture in sitting and moving, in getting up and in walking, and in sitting back down.

One western style of t'ai chi.

Before we examine Alexander further, let us look briefly at the recently translated works of Master Ni Hua-Ching, a Chinese master of t'ai chi and Taoist internal yoga. In The Subtle Universal Response, he states that t'ai chi as it is usually taught even in China stresses movement from the pelvis.[5] But t'ai chi in its entirety comprises other approaches. He identifies three of these methods. There is the "earth way" of moving from the pelvis, there is the "heavenly way" of moving from the head and the back of the neck, and there is the "human way" of moving from the heart. Through any one of these ways, or various combinations of some or all of them, t'ai chi becomes a way of integration. A way of integrating the nervous system and co-ordinating the metabolism would be one rather limited western way of looking at t'ai chi. The paradox of t'ai chi is "doing without doing", the Taoist imperative. For this, Taoists employ "li," which could be translated in a rather limited way as visualization or creative imagination, creating the action from the imaging power of the being. In this there is an approach similar to Tibetan yoga.

Alexander stressed that his key organizing principle was "the direction."[6] However, no action was accomplished directly by doing. Instead his first principle was the use of inhibition, a word which later caused great conflict for him because he used it in an entirely different way

from Freud. By inhibition, Alexander meant a conscious decision not to act. He taught a practice of learning to distinguish between moving based on a goal directed desire as opposed to lengthening or extending the free sense of movement where the goal is not important, but the "means whereby" assumes primary importance.

The principle of movement then is not "endgaining" but the "means whereby." So in his use of doing without doing, of moving with a maximum of awareness and a minimum of tension, Alexander could be seen as teaching an outer form of Taoist t'ai chi. Alexander, and many of his students, of course, stressed that his way was the way, and could even help to change the world. However, from the basic Chinese approach it could be seen as just one style or variation of the heavenly style of t'ai chi, of moving from the head and back of the neck. Alexander's outer form of t'ai chi, his style of moving without moving, the "means whereby" rather than "endgaining," could spontaneously lead to the awareness of the development of an internal, subtle, Taoist type of yoga. For this to be achieved, the internal awareness must be developed, much as in the Burmese cultivation of the awareness through stillness and motion, through sitting and walking. Alexander deals with the question of breathing by saying "we never talk about breathing."[7] As opposed to the schools of deep breathing then in vogue in the west, Alexander suggested merely determining if the breath is free or forced. In the Alexander technique, "you simply allow your breathing to take place in accord with your expanding, decreasing, ever-changing needs as you move about, or remain still, in many different ways."[8] Here is at least a superficial similarity to the Burmese practice of awareness of the

breath.

Nobel prize speech.

Western man might even consider the Burmese approach to walking, sitting, breathing and meditation as very simple, even quite scientific, and certainly without any overt esoteric content. John Dewey made the same point about Alexander's technique, "there is nothing esoteric in his teaching."[9] Dewey went on to examine the technique objectively as well as to practice it. He further proclaimed "in affirming my convictions as to the scientific character of Mr. Alexander's discoveries and technique, I do so then not as one who experienced a "cure," but as one who has brought whatever intellectual capacity he has to the study of a problem."[10] Professor Niko Tinberger, the 1973 Nobel prize winner in physiology and medicine, praised Alexander's "basic scientific method," his old way of open minded attention, of watching and wondering about behavior, as the basic method used for his award winning work in ethnology on the modes of attending animal behavior. Before the Nobel Prize Award body, Tingerger said, "This story of perceptiveness, of intelligence, of persistence, shown by a man without medical training, is one of the true epics of medical research and practice."[11]

The cadaver approach.

Perhaps it was the very lack of western medical training that allowed him to observe and to experience the actual action of the body in movement and in rest. Dewey further asserts that Alexander may have created a "physiology of the living organism."

> His observations and experiments have to do with the actual functioning of the body, with the organism in operation under the ordinary conditions of living -- rising, sitting, walking, standing, using arms, hands, voice, tools, instruments of all kinds. The contrast between sustained and accurate observation of the living and the usual activities of man and those made upon dead things under unusual and artificial conditions marks the difference between true and pseudo-science. And yet so used have we become to associating 'science' with the latter sort of thing that its contrast with the genuinely scientific character of Mr. Alexander's observations has been one great reason for the failure of many to appreciate his technique and conclusions.[12]

It is rather odd that this cadaver approach has never been pointed up as one of the major weaknesses of modern medicine. Plain common sense states that the static, frozen or dried up state of dead matter may give no real indication of its complex of forms and energies in life and movement. It is also quite odd that this rather quaint approach of modern medicine to understanding living and moving human beings has become almost the only "scientific way." However, if one wished to learn how to function as a cadaver, one could go for treatment to someone who has predominantly studied on cadavers. What works best on cadavers, i.e., surgery, may not work best on living organisms. Put this way, the dualistic, reductionistic mechanistic, deterministic assumptions on which western medical education rests are the likely basis for its present crisis of confidence. The operation was a success, but the patient died. After all, who wants to be a cadaver before one's time.

<u>One way among many</u>.

It is also odd that Alexander was so highly praised for taking a common sense approach of observation that lies at the root of so many ways and techniques of eastern cultivation. Alexander's technique is essentially

just one style of many possible means of approach; it is definitely not for everyone. However, it is beneficial for many who try it, and more deeply beneficial for a few to whom it becomes a rather inadvertent means of internal awareness and self-discovery. Dewey praised it by saying there was nothing esoteric in Alexander's teaching. Dewey also considered it to be not only superior to psychoanalysis, but also a necessary complement to psychoanalysis.

John Dewey's commentary.

Indeed, Dewey goes even further by calling such a technique the necessary basis of all education:

> The technique of Mr. Alexander gives to the educator a standard of psycho-physical health in which what we call morality is included. It supplies also the 'means whereby' this standard may be progressively and endlessly achieved, becoming a conscious possession of the one educated. It provides therefore the conditions for the central direction of all special educational processes. It bears the same relation to education that education itself bears to all other human activities . . . . It contains in my judgment the promise and potentiality of the new direction that is needed in all education.[13]

Ironically, Dewey has recognized the basis for the educational system of some of the most ancient and rich of the classical cultures, the basis of the inner and outer education of the cultures of India, China, Greece, Japan, Tibet and Burma. Yet he was a captive of the theory of progress as well as the rational approach of the scientific method. He recognized how irrational that approach itself had sometimes become, and in his medical analogy pointed the way to how much the scientific method itself had degenerated into a pseudo-scientific cult of rationality. He also praised Alexander for that pure sort of scientific research, based on clear

observation and experience -- observation and experience, those other two pillars of classical education. Dewey continues,

> Those who do not identify science with a parade of technical vocabulary will find in this account the essentials of scientific method in any field of inquiry. They will find a record of long, continued, patient, unwearied experimentation and observation in which every inference is extended, tested, corrected by further more searching scientific experiments; they will find a series of such observations in which the mind is carried from observation of comparatively coarse, gross, superficial connections of causes and effect to those causal conditions which are fundamental and central in the use which we make of ourselves[14]. . . . In the present state of the world, it is evident that the control we have gained of physical energies, heat, light, electricity, etc., without having just secured control of our use of ourselves is a perilous affair. Without control of our use of ourselves, our use of other things is blind; it may lead to anything.[15]

It is too bad he lacked the historical perspective to look at some 3000 or more years of cultural experience in the countries of the white man's burden. Dewey continues,

> The chief difficulty, as I have said, lies in the fact that it is so badly needed[16] . . . . The world is flooded at present with various systems for relieving the ills that human flesh is prone to, such as systems of exercise for rectifying posture, methods of mental, psychological and spiritual healing, so that, except when there happens to be an emotional wave sweeping the country, the very suggestion that there is a fundamental truth in an unfamiliar principle is likely to call out the feeling that one more person, reasonably sensible about most things, has fallen for another one of the 'cure-alls' that abound.[17]

However, Dewey did see the need for such an approach in education itself. For, according to Dewey,

> (Alexander had found) . . . a method for detecting precisely the correlations between these two members, physical or mental, of the same whole, and for creating a new sensory consciousness of new attitudes and habits. It is a discovery which makes whole all scientific discoveries, and renders them available, not for our undoing, but for human use in promoting our constructive growth and happiness.[18]

Dewey continues,

> The discovery could not have been made and the method of procedure perfected except by dealing with adults who were badly co-ordinated. But the method is not one of remedy; it is one of constructive education. Its proper field of application is with the young, with the growing generations, in order that they may come to possess as early as possible in life a correct standard of sensory appreciation and self judgment. When once a reasonably adequate part of a new generation has become properly co-ordinated, we shall have assurance for the first time that men and women in the future will be able to stand on their own feet, equipped with satisfactory psycho-physical equilibrium, to meet with readiness, confidence and happiness instead of with fear, confusion and discontent, the buffetings and contingencies of their surroundings.[19]

Alexander presents one style out of many. His method and its reception may be historically analagous to the pure perception and observation of the Buddhist path in India which arose when the Hindu way had become encrusted with layers of ritual and superstition. The method is very similar to the clear observation of Burma, although tending to a more rigid definition of "the heavenly way" as the only style.

Alexander came from Australia, where he was originally an actor whose voice tended to fail during recitals. He developed this method utilizing head-neck emphasis for righting this problem. Perhaps he even derived much relevant information from observing not just himself, but the walking and speaking patterns of such "inferior races" as the aborigines or the Chinese dockhands. Or maybe he simply discovered it himself by a common sense application of observation and experimentation. Nonetheless, his experience, in this mechanistic western culture, and Dewey's commentary on his technique and its implications, is quite valuable to us today. For Dewey saw these glaring psycho-physical weaknesses in our method of education that still exist today. And he pointed to one particular

solution, which was one among many going back some 5000 years, as a potential basis for this sorely needed introduction of psycho-physical education.

## MOSHE FELDENKRAIS

Alexander was the forerunner of a burgeoning western movement of evolving techniques of psycho-physical evaluation. The trend continues today, and is now being consciously cross-fertilized by contact with oriental ways. Perhaps it has always been that way. For instance, Moshe Feldenkrais, the author of Awareness Through Movement and The Case of Nora has a following of his own today, especially in that media capital, New York City. Feldenkrais even asked Alexander to write the preface to his 1949 book Body Sexuality and Mature Behavior. According to the story, Alexander not only refused, but also accused Feldenkrais of stealing from him, for Feldenkrais had studied with Alexander.

### Judo and physics.

Yet Feldenkrais differed from Alexander, for Feldenkrais came to "the work" with a much different background. In the first place, Feldenkrais was a nuclear physicist who had once worked with Madame Curie's daughter. In the second place, he was one of the first caucasian black belts in judo. Indeed, he has also written a few books on judo itself. According to his own story, he injured his knee playing soccer, and medical doctors gave him only a 50/50 chance of healing with an operation. Not liking the quoted odds, much less the implied ones, and being a good physicist, he took to studying

anatomy, physiology, and nerve-physiology. From this he illuminated the evolution of different types of movement. Through this process he healed his own knee, then began working with individuals, and later with groups.

Sometimes he neglects to mention that he studied with Alexander and his teachers, and also with the Gurdjieff movement people. If Alexander has made the same kind of omission in regard to study or observation of Aborigine or Chinese methods, it is more difficult to trace. However, from his background in physics and judo, Feldenkrais had some major differences of opinion with Alexander besides the explosive chemistry of two strong egos.

As a mathematician, Feldenkrais recognized that no one form, no organizing principle or set of directions can be the one way to move. He aimed to teach individuals by coaching them through a set of movements to have the possibility of sets of movements rather than just one method. From this he defined maturity as the break down of old gestalts, which then reform instinctively as free movement.[20] He differed in other ways. Feldenkrais does not trust consciousness. In his books he says consciousness only gets in the way. He considers conscious awareness as only the desire to do things, whereas Alexander uses that essential conflict to transcend the ordinary way of doing things and to open up the realm of possibilities. In other words, Feldenkrais advocated what might be called the "earth style" of moving from the pelvis. His presentation could also be considered an aspect of Gurdjieff's moving center approach. Alexander on the other hand, advocated a "heavenly style," centered on the head and back of the neck.[21]

"In the Alexander technique, they hold too much to working with one

form, the head and back of the neck style, as the only way. In Feldenkrais work, they dismiss working with the mind directly, discounting consciousness itself."[22] For instance, Alexander was an actor and an actor learns to mentally create a character and let it live. Feldenkrais was a judo expert, and in judo you learn to not think, but to react without thought. Herein lies a major difference, for Alexander mentally created this idea of freedom, this new way, and let it live. In attempting to let it live what unfolds is how one interferes with what is happening and then overcreates one's life. Feldenkrais, using the judo approach, attempts to trick the nervous system into realizing. One never knows where Feldenkrais movement leads, therefore one never knows where one is going. So one is led through a convoluted series of movements which lead to a state of more freedom and opening, but one doesn't know how one got there. So, like some Taoists, Feldenkrais does not go directly.[23]

Kinetic crown of the senses.

Although both Feldenkrais and Alexander advocate the development of a specific kinetic sense, what Alexander calls "the crown of the senses,"[24] they deal with this kinetic sense in different ways. Feldenkrais sees this as the development of a hyper-kinetic sense, with the concomitant ability to perceive finer and finer grades of tension and muscular movement. For him, the ability to perceive a difference leads to the ability to make a difference. Alexander's concern is with the conscious control and awareness of what he called the Universal Constant in Daily Living, in a book of the same name. Here was posited an unchanging element in oneself, with a somewhat more esoteric flavor, in spite of the comments of Dewey.[25] The

titles of some of his other books reflect this bent: Man's Supreme Inheritance, The Conscious Control of the Individual, The Use of the Self, and The Universal Constant in Daily Living.

While we can see similarities and differences between Alexander and Feldenkrais, we can also see that they proceed along the same path, and in fact have different descriptions of that path based on their own unique perspectives. Obsessed with the ownership and promulgation of their discoveries, they failed to take into account such rich cultural traditions of similar journeys that we find in the east. They were, in effect, in kindergarten, claiming to be in high school. Yet kindergarten, where the learning rate is most rapid, is a good place to start. Dewey, in his call for such an approach as the basis for education, suggested that Alexander's movement techniques were superior and even a necessary complement to the successful completion of another western approach, psychoanalysis.[26] Let us now look at two recent derivatives of Freud's original presentation of psychoanalysis, the works of Wilhelm Reich and Alexander Lowen.

## WILHELM REICH

Wilhelm Reich was one of Freud's disciples. Before he worked with Freud, he delved into the study of sex in its political context. He became a very important Freudian and developed the term character armor, which he describes as more than just symptoms, being instead a fundamental set of relations. His work, Character Analysis, is still used by Freudians. Reich took literally Freud's concept of the biological base of the libido, the sexual energy. Reich noticed that corresponding to the psychoanalytically

determined character structure there existed a physiological character armoring of the muscular system.

Inherent in the Freudian system was the principle of non-interference with the patient, the principle of objective, neutral scientific observation. Reich, however, chose to intervene directly through breath and touch to affect that body armoring. During the experimentation phase he changed the name of his work to vegetive therapy, for the armoring had led him to work with the vegetive or autonomic nervous system. From this work came Reich's theoretic anatomy -- not the anatomy of bones and muscles, but the anatomy of an amoeba. In seeing his theoretical anatomy in terms of a bladder constantly filling and emptying, Reich recognized the pulsation of expansion and contraction as a major function of that primitive life form. He also saw the armoring as appearing where there is interference with the pulsation.

Pulsing Movement.

In his studies of this vegetive nervous system and the character structure, Reich determined that the anatomy of this energetic pulsation was such that energy moved from base to head along a central core axis. He saw this axis as divided into several segments. In this sense his anatomy was drawing upon a more primitive anatomy, the energetic image of humans as worms. Here he draws on our evolutionary basis from an earlier stage of differentiation. He saw us energetically as sort of an alimentary canal surrounded by segments, the movement of these segments being analogous to functioning in the world. He identified, through these segmental levels, a view of the goal of this therapy. The goal was that condition when an

impulse would pass freely through the system, from head to tail or tail to head. This passage he termed plasmatic currents or streaming.

Free Flowing Movement.

This streaming, or condition of free flowing movement, can also be expressed as the surrender of voluntary control to the involuntary level, i.e., the release of built in tension to the autonomic nervous system. This release, experienced as a wave-like motion, he called the orgasmic reflex. This reflex was not to be confused with sexual orgasrn, which could be construed as an aspect of the orgasmic reflex. However he got into trouble with other Freudians with his contention that for an individual to have a free, spontaneous orgasm, that individual must not be neurotic, and therefore must have no blocks in the streaming process. As his experimentation went deeper into the realm of biological energy, the verbal interpretation fell by the wayside. His studies then went into the realm of what he called the "cosmic orgone energy," and he began to study phenomena other than the individual. Reich's attitude to this study was marked by a basic reductionist scientific method. From this came a western style attempt to build a machine, the orgone box, to collect and, in effect, manufacture this energy -- or allow it to be gathered and directed. Controversial and misunderstood, he was locked up and certified insane by other Freudians.

## ALEXANDER LOWEN

Alexander Lowen, the founder of bioenergetics, acknowledges that "Bioenergetics is based on the work of Wilhelm Reich."[27] Lowen was originally a physical therapist who had practiced yoga and participated in sports. Lowen began his work with Reich when Reich was teaching at New York City's New School of Social Research. At that point, Reich was still working with the psychoanalytical interpretation. Then Lowen went to Europe to become a medical doctor. When he returned as an M.D., Reich was no longer working in analysis but was heavily involved in his esoteric work with "cosmic orgone energy."

As "cosmic orgone energy" was not why Lowen had decided to become an M.D., Lowen decided to keep Reich's psychoanalytical base and explore more how one could work with oneself. Here he explored postures and positions, especially what he termed "stress postures." Lowen would direct an individual to get in a position that involved conflict with their armoring. Through this conflict, the emotions within could rise up, aiding both analysis and energetic discharge.

An essential feature of Lowen's work is the concept of grounding, the importance of energy moving down the legs so an individual could feel the ground underneath the feet. For Lowen the goal was to open up the armored shield of ego defenses to allow the core of the individual -- the heart -- to open up into the world. As Lowen puts it, "bioenergetics uses the language of the body to heal the problems of the mind."[28]

For both Reich and Lowen the expansion phase -- energy moving from the core of the individual body/mind to the periphery -- is identified as

pleasure or growth. And the contraction phase -- energy moving from the periphery to the core -- is identified as anxiety or pain. From the Chinese viewpoint, such dualism would be considered a major flaw in the thinking and work of these westerners. In the identification of expansion (or progress) with the good and contraction with the bad, we find that persistent western flaw of identifying the male principle with good and the feminine principle with the bad. We continually lack the sort of clearcut perception of the Chinese and other classial cultures that within the positive is the negative, and within the negative is the positive, that these polarities are together in their constantly changing web of interactions, an expression of the holistic nature of the universe.[29]

For some perspectives Reich's work would be considered too hard and too interventionist. From others, it would be similar to the zen viewpoint of sitting calmly no matter what physical, mental or emotional pain and tension arise, or similar to the Mongolian warrior system of removing the tension of battle by digging into tight areas of the body using pieces of smooth ivory. In many of the postures Lowen uses, we see a resemblance to the postures of both Indian and Chinese yoga, for Lowen himself a practitioner of yoga, as Feldenkrais was a practitioner of judo.

## CONCLUSION

We have here presented models from the west which show different aspects of the body/mind continuum. However, in these models there is no coherent perception of this continuum. In other words, we are viewing different paths up a huge mountain without being able to see the mountain.

Those who have pioneered the paths are merely able to tell us that they go up, and we can see better from there. But some essential is missing. Each model is circumscribed not only by western language, in this case English, but also by cultural and scientific conventions, rituals, mumbo jumbo, as well as the strong egos of the pioneers and the illusion that their's is "the chosen way."

Thus in the work of Alexander and Feldenkrais, of Reich and Lowen, and of other westerners, we see examples of western disciplines, each in its own way describing elements of oriental psycho-physical tradition without that core of understanding, that base that comes from the east. Indeed, one of the major thrusts in the west is to discover that theoretical core which supports all these schools of therapeutic action. Perhaps what we should do is look for comparable presentations from the east. For instance, does the experience of Reich's work resemble in many ways the experience of kundalini yoga? We can take these cross-cultural, cross-disciplinary models, and use them in our continuing development of western psycho-physical disciplines. From this we can develop educational models which help us to understand how individuals unfold. As it now stands, western psycho-physical disciplines are still caught in the gears of the mechanistic Newtonian view of the world.

# CHAPTER VIII

# FLY IN A WORLD OF WEBS

The Interrelated Web

The Telephone -- Western Telepathy

McLuhan's Global Village

Fuller's Spaceship Earth

Voyager's Power

Beyond the Global Village of Spaceship Earth

Perception through Experience

Our Children's Reality

Why Education Fails

# A FLY IN A WORLD OF WEBS

The interrelated web.

If we look carefully at our world we will see that we and our children no longer live in a Newtonian land. Our everyday life, our most ordinary transactions, already take place in an interrelated web of dynamically active relations. For instance, there is the electronic web delineated in McLuhan's concept of the "global village." McLuhan calls us to look carefully at all aspects of how we communicate and at how we educate ourselves for this world. Yet this "global village" concept is limited compared to the actuality of our everyday environment. The whole world -- Buckminster Fuller's "spaceship earth" -- is already linked by the telephone. There are the Captain Krunch's with their little blue boxes sitting in Dubuque, Iowa, with two telephones. On one phone, Captain Crunch places a call to himself on the other phone, but he routes it through Mexico City, Rio de Janeiro, Dar es Salaam, Cairo, Rome, Moscow, New Delhi, Peking, Tokyo, Honolulu, and San Francisco, back to Dubuque, where some short time later he picks up the phone and hears himself. What has happened to time and space? In simple, ordinary terms a child today can pick up a phone in New York and call a friend in California, and be instantly interconnected and communicating with that friend. The 3000 miles mean nothing. The 3-hour time difference is not a barrier. Time and space as we commonly perceive it are no longer limiting. This is the world the child grows up in from birth. This is the child's experience of reality. The child, from its own experience, is a part of an interconnected web of dynamically active relations.

The telephone -- western telepathy.

So we grow up using the physical intercom system newly built into spaceship earth. Nothing remarkable here. And we can have instantaneous direct contact with whomever we wish over the wires. In our North American culture this metaphor is so pervasive that there is no need for telepathy -- just pick up the phone and dial. Of course, telepathy might work in a similar way, without the addition of monthly bills and constant rate increases. The point is that communication remarkably similar to that of ancient and mystical cultures is already an ordinary part of our environment. One might say, our birthright is a phone of many dials, able to reach anywhere for a price. As McLuhan would say, the medium is the message -- and what a message!

McLuhan's global village.

At his death, McLuhan's contributions were reviewed on the editorial page of the Wall Street Journal. The following extensive quotes from the article acknowledge both the breadth and depth of influence which McLuhan had on our entire perception of ourselves and our culture.[1]

> McLuhan made us realize a truth about television based on an analogy to the automobile. When the motor car was invented, people first called it a "horseless carriage," as if that defined and confined it. Not until it had outrun all the horses in the world and Pegasus together, caused much of the surface of the globe to be paved over with concrete or macadam, made us a neonomadic people and contributed to the start of the sexual revolution, did people realize that the automobile had not been a horseless carriage after all but a radical, irreversible alteration of the culture and environment.
>
> In the same way, McLuhan said, it was a mistake to think that television was just radio with pictures. Television, he asserted, also was a radical, irreversible alteration of the culture and environment and therefore of the lives of those who

were adults when it first appeared but far more so for succeeding generations growing up with it. Many of his pronouncements about it were perverse-seeming and arguable, but at the same time thought-provoking and disturbing. He said it ended the age of Gutenberg and that the book was doomed. He said the page of linear type, and with it the line of sequential verbal thought, was being displaced as a mental process, especially for children, by the flickering non-verbal succession of pictures with no linear verbal linkage.

He believed that the content of TV programs and arguments about whether they should be mass-pop or highbrow were irrelevant. "The medium is the message," he asserted. Nothing on it is as significant, influential, socially altering as the thing itself. Of what is on it, no sort of programming ranks in impact with the commercials. He followed this major thesis of Understanding Media with a punning variation in a mixed-media book called The Medium is the Massage, based on the premise that television, and to a lesser extent, all other communications media, are working us over manipulatively, toning, pummeling, reshaping and reconditioning us like a masseur of our minds.

Among his bright flashes of insight, he gave us such notable phrases as "the global village," which he said the world has become in the age of almost instantaneous global communication by sight and sound. He projected his notions about TV into a larger framework and said that the whole of the electronic revolution, while bringing into existence the global village, also had created a communications web that functions as a vast, single nervous system for the entire planet.

He saw early that the computer was to become a major component of that electronic nervous system and while many still were marveling at how the first computers were making up payrolls and subscription lists, McLuhan contemptuously and correctly dismissed that as slave work, saying that the real use of the computer lay ahead, not in taking over the drudgery of our hands -- which the robots rapidly are doing -- but in extending the capacity of our minds. He would have seen -- probably did even after he was too sick to go on writing about it -- that the present wedding of the sophisticated robot with the sophisticated computer is not just an advance in greater gadgetry but yet another radical, irreversible alteration of the human environment with consequences unpredictable.

McLuhan's greatest gift, which we shall miss, was the ability to see more quickly than most, and to convey his vision to us in pithy phrases, the farther implications of what at first

> just seemed to be the carriage without a horse, the radio with pictures and an electronic memory to help the IRS to harass us.

Fuller's spaceship earth.

Buckminster Fuller's vision of "spaceship earth" underlined the obvious. When earth is viewed via those magnificent photographs from the moon and the satellites -- it does become "spaceship earth" -- a blue-green spherical beauty suspended in this great vastness. These photographs, and Fuller's captions, provide a different perspective from which to view ourselves and our world. They are also hard, practical, physical evidence of this point of view. In our conscious and unconscious minds our world is now seen as this beautiful blue-green sphere suspended in space. No longer is this a flat earth with a vault of heavenly stars. No longer is the earth the center of the universe --and no longer is the sun.

Voyager's power.

Indeed, other planets in our solar system are more awesome and spectacular than our own. In our living rooms we sit and view those extraordinary photographs from Jupiter and Saturn -- seemingly mini solar systems within our own system. In some way they are no further away than the twist of a dial, no further away than a call to L.A. Yet that Voyager satellite is moving, actively flying toward and around the constantly moving planet, rotating on its own axis, orbiting the sun, with its clouds, its rings, its moons swirling, a pulsating, everchanging mass -- right in our own living rooms. The greater rhythms of nature are brought to us who stay in our own climate controlled rooms, avoiding the study of the rhythms of nature on

earth. This is a bit more than just spaceship earth, more than just a global village.

Beyond the global village of spaceship earth.

McLuhan's division of the age of man into three sections, pre-Gutenberg, Gutenberg, and Global Village, gives us another interesting perspective. For all the classical cultures we have considered were pre-Gutenberg, before mass printing on such a grandiose scale. By their own standards, they were all quite literate with written records as well as sculptures, stories and paintings of their cultural heritage. And their educational systems were different, emphasizing the experience of their perceptions. After Gutenberg we have something different -- the isolated study of observations and the singular accumulation of knowledge rather than understanding. We have a mass of facts -- the literary equivalent of the pre-computer age -- to fill a mass of books, all properly correlated and indexed, of course. In New Zealand, as rumor has it, in one drought year they fed the sheep on old, shredded government reports.

What has happened is that our mass of facts and books have pulled the wool over our own eyes. In research, it does not seem as important to investigate and interpret what happened in an era or a field as it is to quote some source of expertise. So it is interesting to look at the history of the historians themselves. For instance, today Dwight Eisenhower is being resurrected by the Yale and Stanford groups because their re-interpretation of his style of governing seems to provide some basis for Ronald Reagan's projected style. Previously, Eisenhower was savaged by the Harvard group in contrast to the young, energetic approach to their Boston FDR, John

Kennedy. Ironical as it may seem, Kennedy and Reagan, both from the same generation, employed similar rhetorical and political approaches in their campaigns. If their projected policies are examined carefully, they also are similar. Although this is not conventional wisdom, it is a rather fascinating perspective. History is what the historians say it is. History is the victors' story of their own victory. These sorts of things, naturally, affect us quite deeply.

Perception through experience.

The control of education is one of the spoils of the victor, but on a somewhat broader scale. In our educational system, the rational way is the only scientific way, the only correct way. But the concept of the isolated, literate, rational man has been challenged, and not just by the old cultures, but by the most advanced work of the elite shock troops of the rational way, the physicists themselves. The burden of proof in the correctness of the rational way is placed on those magnificent machines and computers and electronic constructions that permeate and dictate our culture. Yet the existence of those very computers and telecommunications systems shows us a reality much more vast than the narrow world of rationality. Show is not the right word, nor is tell. For we perceive through our experience, in a sense through our psycho-physical pores, a more total communication. McLuhan called us to look carefully at the medium, all those little nuances, the clothes, the pitch. In a sense, we were called away from our recently developed habits of just looking at the print, then the fine print. Just like the Indians, we discovered the treaties weren't worth the paper they were written on. So we are called to use all our faculties, not just our literate,

rational faculty, to observe the totality of what is going on -- colors, movements, tastes, smells, sounds, sights, and feel; the emotions, the impressions and the images these evoke. Not just what some objective expert said it was on paper. We all have our own unique perspective -- as we will all see, hear, touch, taste, smell and feel the same occurrence in slightly different ways. Our perception has altered for us what took place. It is also part and parcel of what took place.[2] Thus we live in this interconnected web of ever-changing, dynamically active relations -- between others, between planets and within ourselves.

Our children's reality.

The global village is too limited an idea. We live in this expanded electronic grid. It is our direct experience -- as well as our metaphor for seeing the world, each other and ourselves. But it seems largely like our own nervous system, operating of its own accord, without our conscious awareness of this unseen, everpresent reality. It is a well kept secret, even from ourselves, just like the circulation of blood was not discovered in the west until fairly recently, but has been known in China for 5000 years. We may have "split mind" over this, for we are on the edge of a larger split itself. However, for our children, through radio, telephone, television, computers and video computer games, it is their reality. Carl Sagan, Spiderman and Space Invaders seem somewhat beyond McGuffey's Reader.

Why education fails.

Why does education fail today? Perhaps it has not considered the expanded perspective. Here are our schools trying to take children with this

sort of experience and perspective, and educate them in a strict, conventional or alternative Newtonian way, trying hard to deny, to stamp out, to negate the constant experience and perception these children have in their very environment, in their very natures, instead of addressing what the children experience. The culture has gone so far beyond the formal education, that actual education doesn't really take place until they leave school. It is like trying to hold a finger in a dike that has already crumbled on either side.[3]

It would make a great deal more sense to work with these cultural strengths. The children are extraordinarily "literate," are exceptional communicators within this mosaic of interconnected electronic webs. From my own extensive work with children helping them make their own films and video tapes, I find they have a natural ability to communicate in this tactile, cartoon-like way. Since this is the cultural communication with which they have grown up, they already know the language. Not just the fine print medium, but the more expanded language itself, the total communication -- body language, clothes language, mind language, smell language, word language, gesture language are themselves communication. They talk, think, move, act, communicate in this electronic web. Like Spidermen and Spiderwomen, they can go anywhere on the web.

We and our educators tend to be like the flies and other insects, whose Newtonian view draws us into fatal contact with the web, where we become stuck, enshrouded, an easy mark, a feast for the agile abilities of our web-wise children. It is a world view, a rigid, deterministic, rational world view that even during its sticky death throes does not acknowledge that the web

is there. Well, the Last Supper preceded the Resurrection. And that spider needs food to make lots of little spiders to run that web. If our children already know what is is to be a spider, why would they choose to be a fly in a world of webs?

# CHAPTER IX

## HOLOGRAM, HOLOWORLD, HOLOBODY

# CHAPTER IX

## HOLOGRAM, HOLOWORLD, HOLOBODY

"Maybe the world is a hologram."

- Karl Pribram[1]

Having looked at the models of the classical cultures as well as at some modern approaches to similar questions, we now turn again to the new physics and the work on holography of David Bohm. Bohm, a protege of Einstein, has called for a new order in physics. What we see as the stable, tangible, visible, audible world, according to Bohm's research, is not really "there". It is, instead, an illusion, dynamic and kaleidoscopic, without concreteness. Our normal way of looking at the world is similar to watching a movie. We see the explicit order of things, we see things unfold. But Bohm sees an underlying order that is parent to our apparent reality. This other order is implicate or enfolded. Much as DNA in the nucleus of the cell harbors potential structure and directs the nature of its unfolding, so Bohm sees this enfolded order as harboring our reality.[2]

Implicate and enfolded: Bohm's holomovement.

In one of his experiments,[3] Bohm describes an insoluble ink droplet in glycerine. If a mechanical device slowly stirs the fluid so that there is no diffusion, then the droplet is eventually drawn into such a fine thread that it is not only distributed evenly throughout the system but is also no longer visible to the eye. Reversing the mechanism will cause the thread to slowly gather again, until it suddenly coalesces into a visible droplet. On the other hand, if several droplets are stirred into the fluid a different number of

times and in different positions, and if they are stirred continuously and fast enough, then what the eye will see is a single ink drop moving across the fluid. But there is no such object. There are other examples of such an illusion in our environment: animated cartoons which give the illusion of continuous movement, movies themselves which are 24 or so single still frames per second passing in front of the projection light which give the illusion of continuous movement, even commercial signs made of rows of electric lights which flash off and on giving the impression of sweeping arrows, or other forms. Bohm proposes that all apparent substance and movement are likewise illusory. He sees them as emerging from another more primary order of the universe. He calls this phenomenon holomovement.

A holographic universe.

There are other scientists studying four dimensional objects. One of them claims that since shadows are two dimensional reflections of three dimensional objects, three dimensional objects are possibly shadows or reflections of four dimensional objects. Bohm's thought is along similar lines, for Bohm describes how we have perceived nature since the time of Galileo. In simple terms, like a slightly dotty photographer, we look at nature through a lens. Our very art of objectifying, of looking through a lens or electronic microscope, alters and even distorts what we hope to see. It is as if in trying to capture the reflection of what we see on a two-dimensional photograph, we want to make it stay still, to find its edges. Yet there are no "edges" as we know them because there are no "things."[4] Their true nature is another order of reality, another dimension. In bringing the

picture into focus, in bringing what we "observe" into focus, we ignore that the blur itself is a more accurate representation. The blur itself is the basic reality. What Bohm describes is a holographic universe.

But what is a hologram? Holography was invented in principle by Dennis Gabor in 1947. His discovery earned him a Nobel prize. But the actual hologram, a sort of three-dimensional "picture" produced by lens-less photography, was not constructed until the invention of the laser. In simple terms, a hologram is a photographic-like plate. On its surface are various incomprehensible swirling patterns. The holographic plate is made in a fascinating way. "Interference patterns" are used to recreate the image. The patterns result when light reflected from the object intermingles with a "reference beam." it is only when the crossing of these two lights (a point of view) meet a photographic plate that a "hologram" is recorded. The meeting of the interference patterns of light reflected from the object and light from the "reference beam" are necessary for the establishment of the "point of view" which is essential for the creation of the hologram. When light from a coherent source, such as a laser, is shown through the plate, the result is a three dimensional image suspended in space. The hologram is not projected on to a flat surface, nor are special glasses required to see the 3-D effect. Instead, the actual hologram is a re-creation of the actual picture in three dimensions having length, width and depth. The projection itself is suspended in space. The viewer can almost circle this hologram as if he were circling the concrete object itself, although the hologram would probably appear less substantial than the actual object.

Holography and consciousness.

If the holographic plate is one foot by one foot, and one cuts off one quarter of it and shines the laser light through it, one would get the same image in its entirety, only with diminished resolution and seen from the point of reference of the cut-off portion of the plate. A one inch by one inch piece would give the same result. Indeed, if you take the smallest possible bit and shine a laser light through this remnant, you still get the entire image, again with diminished resolution, again from the point of view of the smallest bit. All the information, in its entirety, the whole code, can be seen from any point of reference, any point of view, in the medium. Gabor and Watson and other research scientists, including Ula Belas of Bell Telephone Laboratories, in developing the implications of holography, identify a connection between the holographic principle and the phenomenon of consciousness.

Karl Pribram, a Stanford neuroscientist and former brain surgeon, also entered the field of holographic research as a result of Bohm's work. At Stanford, Karl Pribram studied brain processes in higher mammals, especially primates. In his early career as a brain surgeon he worked under Karl Lashley, who for thirty years searched for the site and substance of memory, what he termed the elusive "engram," the projected primitive unit of memory. First Lashley trained experimental animals. Then he selectively damaged portions of their brains. His proposal was that by removing parts of their brains he could in effect scoop out what they had learned. What he found was somewhat different. Short of lethal brain damage, their performance merely worsened somewhat. He was unable to

wipe out what they had been taught. Pribram helped Lashley to write up part of this research. He too was searching for the missing engram, but he was puzzled that memory seemed to be distributed throughout the brain and not localized and stored in any one part. Lashley, perhaps facetiously, described his research as proving that learning was not possible.[5]

Pribram's application.

In the mid-sixties, Pribram read an article in Scientific America[6] describing the first construction of a hologram. Pribram saw this remarkable invention of modern physics as a model for how the brain might actually store memory. From his and Lashley's research, memory could be thought of as not localized but distributed, so perhaps it was holographic in nature. Perhaps the brain dealt in interpreting bioelectric frequencies, in interaction throughout the brain.

According to neuroanatomist Paul Pietsch, "Stored mind is not a thing. It is abstract relationships. . . . In the sense of ratios, angles, square roots, mind is a mathematics. No wonder it is hard to fathom. The abstract principles of the hologram may explain the brain's most elusive properties."[7] Here again we have that western mystical tradition begun by Pythagoras -- mind as mathematics. At least mathematics is a common language, and much more effective than rational English for expressing such relationships. Pietsch and Pribram and others had proposed what appeared to be the brain's calculative strategies for knowing and for sensing. The sense aspects of phenomena appear to the brain as frequencies on which the brain performs complex transformations.

The brain as hologram.

Since these processes are mathematical, they have little relationship to the apparently "real" world of our conventional perception. Pribram began to decode and isolate this process even further. These intricate mathematics might be performed by waves that move along a network of fine fibers on the nerve cells. As a projected hologram decodes or de-blurs its original image, so might the brain decode its stored traces of memory. In addition, holograms are extraordinarily efficient, for billions of bits of information can be stored in an infinitely tiny space, for the plate has no space-time dimension. The same might be true of the human brain.

Pribram proposed that the brain, with its own mathematical strategies, might focus reality in a lens-like way. It could make frequencies into objects, the blurred potential into sound, sight, taste, smell and touch. Pribram states, "Maybe reality isn't what we see with our eyes. If we didn't have that lens - the mathematics performed by our brain -maybe we would know a world organized in the frequency domain. No space, no time - just event. Can reality be read out of that domain?"[8]

Pribram went even further. Although he learned to view the brain as a computer, "the brain we now know allows for the experiences reported from spiritual disciplines."[9] Since subjective reports from these sources often sound like descriptions of quantum reality, then perhaps transcendental experience may allow us direct access to that realm. By bypassing our normal constricting perpetual mode we may be attuned to occasional experience of the matrix of reality itself. This could come in mystical states, or in perception heightened by sports or other activity.[10] Our mental

processes, those mathematical processes and neural interference patterns, are perhaps derived from the primary state, the organizing principle, of the universe itself. This is the exact experience which comes from Burmese awareness training, as well as from martial arts and yoga. No wonder Einstein professed mystical awe in the face of such harmony.

An all encompassing paradigm.

Pribram has proposed an all encompassing paradigm wedding brain research to theoretical physics. Not only does this "holographic theory" account for normal perception, but it also shows that paranormal and transcendental experiences are merely a part of the nature of reality. For Pribram sees mystic experience as no more strange than many other of nature's processes, such as the selective application of DNA to form first one organ, then another. "If we get ESP or paranormal phenomena - or nuclear phenomena in physics - it simply means that we are reading out of some other dimension at that time. In our ordinary way, we can't understand that."[11] In the ancient Yoga-Sutras of Patanjali we find the idea of a concrete world generated by interference patterns, by waves. For awareness of "the subtle, the hidden, and the distant" comes from the experience of pavritti -- "before the wave."[12] In another sutra is this graphic description of holographic reality:

> In the heaven of Indra there is said to be a network of pearls so arranged that it you look at one you see all the others reflected in it. In the same way, each object in the world is not merely itself but involves every other object, and in fact is in every other object. . .[13]

Of course, other such descriptions abound in the sacred writings of India, Tibet, China, Japan, Burma and even Greece. Such an attitude is part

and parcel of the training regimen of various yogas and martial arts.

The body itself as hologram.

To sum up, according to the holographic hypothesis, our brains mathematically construct what we normally see as reality by interpreting frequencies from a dimension transcending time and space. The brain is seen as a hologram, interpreting a holographic universe. Thus the body itself could be considered as a hologram. We can take Paul Schilder's concept of "body image", that three-dimensional picture we have of ourselves, and in one moment expand it to a holographic image of our whole being. Therefore in this paradigm the body itself is a hologram, with all that that means for education and physical education in this country. If the whole is a hologram, then all of us and all the things in it are but representations of frequencies interpreted not just by our brains but by that holographic sort of awareness itself. This world, then, is indeed a magic show, its concreteness an illusion.

Access to the total cybernetic system.

If the brain, the universe and the body are holograms, then our beings, our body/mind constructs, are indeed participants in reality, observers who do affect what we observe. Not just our brains, but also our bodies, our very beings are bits of the greater hologram. Under certain circumstances each of us has access to all the information in this total cybernetic system. Holographic models also contain synchronicity, that web of coincidence that sometimes seems to express a higher purpose. These coincidences come from the organizing nature of the matrix itself. The model also explains the

inability of three dimensional instruments, those old mechanistic addendums, to track the energy transference in telepathy, healing or clairvoyance. Since these events occur in a dimension transcending time and space, energy can't travel from here to there, for there isn't any "there." Keith Floyd, a Virginia psychologist, says, "Contrary to what everyone knows is so, it may not be the brain that produces consciousness, but rather consciousness that creates the appearance of the brain - matter, space,time and everything else we are pleased to interpret as the physical universe."[14] The holographic model may also help to explain why events are affected by what we visualize or imagine or dream. The power of the image held in the mind as an instrument towards change is reminiscent of Tibetan uses of visualization.

A new scientific method: the pursuit of understanding.

Pribram himself feels that the holographic model may too radically overturn our previous belief system, our common sense understanding of things and time and space. Since these new scientific findings are full of contradictions, Pribram suggests that children in grade school should learn about paradox. The new generation may grow up accustomed to holographic thinking. Therefore, Pribram calls for a new, old approach in education, an approach where the allegiance to the rational method would be replaced by "science as it was originally conceived: the pursuit of understanding."[15]

Prigogine's theory of dissipative structures.

This new scientific method, the pursuit of understanding, stripped of the intellectual straight jackets imposed by the cult of rationality, can be

seen most clearly in the theory of change proposed by chemist Ilya Prigogine. Prigogine, a physical chemist, was awarded the 1977 Nobel Prize in chemistry for his theory of dissipative structures. In simple terms, "fluctuations" or "perturbations" trigger changes in unstable, self-organizing systems, including human beings. Such fluctuations actually enable the system to "escape" from its old pattern into a new organization of higher order and coherence. Patricia Flynn, in Holistic Health applies Prigogine's theory to conscious health care:

> Certain altered states of consciousness, such as meditation and relaxation, enhance fluctuation in the brain as evidenced by electroencephalographic measurements of fluctuations of energy in groups of neurons. The fact that states of consciousness that encourage and enhance fluctuations in our brain activity produce more changes and more insight than our ordinary consciousness is quite reasonable. It has, in fact, been the experience of contemporary psychology that new patterns that overcome old conditioning are more likely to emerge from such states."[16]

Implications for learning: the meditational process.

Prigogine's theory also suggests that learning occurs more efficiently when these fluctuations of the brain are augmented. The theory of dissipative structures provides a theoretical and scientific explanation for many present educators' successful use of music, imagery, meditation, rhythmic breathing and relaxation techniques, all of which tend to increase brain wave amplitude. In Holistic Health, Patricia Flynn then provides a synthesis of her work as well as Marilyn Ferguson's journalistic observations on the implications of the theory of dissipative structures. What Flynn does not state is that she is giving a precise explanation, in almost traditional Burmese Buddhist terms, of one of the underlying principles for the success

of the process of insight meditation:

> Another important aspect of Prigogine's theory, Ferguson explains, is that it accounts for the importance of not suppressing fluctuations or perturbations in the system. That is, if one is experiencing a feeling, whatever it is and however negative it is, it is important to acknowledge it rather than deny or repress it. "Only by allowing the perturbation its full extent can the brain transform it." She believes that perhaps the dramatic effects of hypnosis in, for example, removing a longstanding symptom of an illness, result from the increased fluctuations which rise out of the focused inward attention. Reliving an incident through imagery might produce "perturbations" which can trigger a reorganization. "A new dissipative structure emerges from the old." A dissipative structure--the dynamic state of matter, matter flowing through time and space -- is inherent in the hierarchy of living systems."[17]

Prigogine's theory is mirrored by the experience of meditation and medicine found in the classical cultures, especially that of Burma. Prigogine had himself built on the work of another Nobel prize winner, Schrodinger, the renowned physicist. Schrodinger showed that the second law of thermodynamics applied only to closed systems, not to open systems like living organisms. Instead of running down, a living organism constantly builds up even more complex substances from substances it feeds on. It builds more and more complex patterns of information, perception, and knowledge. Unlike machines which are reactive, living organisms constantly create new patterns of structure and behavior. As Schrodinger phrased it "what an organism feeds on is negative entropy."[18] Entropy is the term for degraded energy that cannot be used and goes to waste. Negative entropy is the opposite of entropy. Schrodinger's statement refers to the ability of living matter to build up rather than to run down -- to create more complex structures from simple elements and to create order from disorder.

Applications to future studies.

Two futurists have carried Prigogine's work even further. The old chemistry dealt with simple substances that affected each other in predictable ways. Prigogine discovered, in his theory of "dissipative structures," that many simple substances could fluctuate and interact in different ways to produce entirely new and more complex structures. This kind of birth he called "morphogenesis," creating unpredictable innovations.

Futurists Peter Schwartz and James Ogilvy of the Strategic Environment Center find such changes going on in other fields, including an alteration in emphasis from hierarchy to heteroarchy.[19] In fields seemingly as divergent as art, mathematics, business, ecology and economics, the old hierarchical order, a vertical chain of command from the top down, is giving way to heteroarchical order in a horizontal arrangement of co-equal units that generate new and unpredictable results. One example is the trend toward decentralized government and away from the old power centers of Washington, Moscow, Peking and London. Another is the trend toward heteroarchical structures in the world of business as seen in the hugely successful small computer companies of Silicon Valley. The management approach of the Japanese also owes much to a merging of these two models.

"In relation to the environment as a heteroarchy we would not impose our narrow purposes on nature hierarchically. Rather we would consider the perspectives of other species, including rivers, trees, mountains."[20] This approach is, of course, remarkably similar to that of the old Chinese geomancers, and the Sufi geomancers as well. These spiritual architects determined the "dragon lines" (the same lines that are found in ancient

Chinese scroll paintings of nature) studied them carefully, then cut trees or dammed rivers or moved boulders to enhance the beauty and function of an area. If they did their work well, one could not really tell they had done anything. One would just feel different, more whole and complete and peaceful. So in dealing with our own environment we, too, must learn to balance all the rights and perspectives involved, or run the great risk of jeopardizing our own interconnected rights, including our right to survival. There is no single way, no one absolute perspective, for looking at things. The best way to look at things is to combine various perspectives from various observers. As Schwartz puts it, "Our culture, language and world view affect what we perceive and what we do not ... A whole picture is an image generated morphogenetically from multiple perspectives."[21]

Holographic theory and dissipative systems.

How does the theory of dissipative systems combine with Bohm's holographic theory? Karl Pribram feels that the dissipative structures may show "the means of unfolding from the implicate order, the way it is manifested in time and space."[22] Another scientist, Apolinario Nazarea of University of Texas, feels quiet optimism that the theoretical work on dissipative structures may "indicate in its main outlines the so-called holographic theory--though from a different direction."[23]

Bell's theorem.

There is even more powerful work in these fields. In perhaps one of the most dramatic and far-reaching scientific statements, J. S. Bell, a theoretical physicist, gives us Bell's Theorem. Here he expressed in precise

mathematics the Einstein-Podolsky-Rosen paradox of 1935. Bell's theorem states that when certain particles have interacted and then flown off in opposite directions, interference with one particle will instantly affect the other particle, regardless of the distance between them.[24] David Bohm speaks eloquently of this interconnectedness of all things in the universe. In writing about the strikingly novel features of quantum theory he says:

> '. . . there has been too little emphasis on what is, in our view, the most fundamentally different new feature of all, i.e., the intimate interconnectedness of different systems that are not in spatial contact. This has been especially clearly revealed through the, by now, well known experiment of Einstein, Podolsky and Rosen. . .
>
> Recently, interest in this question has been stimulated by the work of Bell, who obtained precise mathematical criteria, distinguishing the experimental consequences of this feature of "quantum interconnectedness of distant sytems."
>
> The parts are seen to be in immediate connection, in which their dynamical relationships depend, in an irreducible way, on the state of the whole system (and indeed on that broader system in which they are contained, extending ultimately and in principle to the entire universe). Thus one is led to a new notion of unbroken wholeness which denies the classical idea of analyzability of the world into separately and independently existent parts."[25]

The holographic processes of the body/mind continuum.

Such are the views on the nature of matter and energy, on the reality of nature and the universe itself, that we find in the fields of modern physics, chemistry and neurological research. What we often forget is that these views directly pertain to the view of the nature of our own bodies and minds and therefore of our education. The perspectives that come from the world of modern science pertain directly to the nature of the body and the mind. From this perspective we find the energy and matter and interactions

of our own beings are part of an incredible play of processes and phenomena. The body and mind, then, are not only an interlocking, interacting display of the manifestations of the universe, they are also, in holographic fashion, that play of expression itself.

Conclusion.

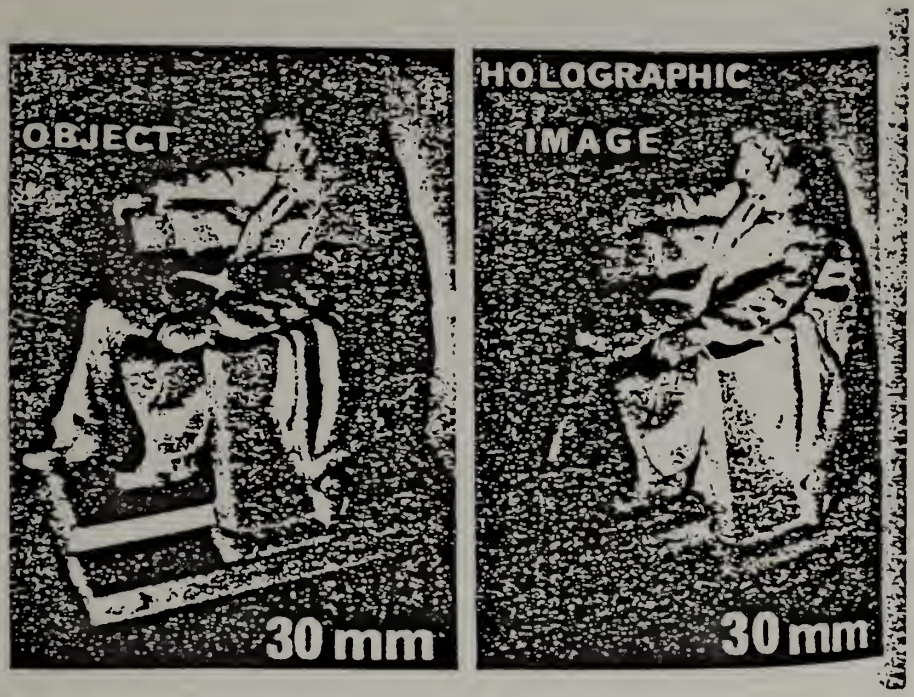
In spite of the works of modern science, such an incredible model of the body/mind continuum goes mostly unacknowledged. Yet as many scientists and physicians know, we have, from our conventional sources, much data to support these "far out" premises. Why don't we hear about this? Dr. Barbara Brown of U.C.L.A., a pioneer in biofeedback research, implies that the data has been ignored or forgotten or even suppressed.[26] Since it did not fit accepted theories, it has collected only dust. Thus it is important to call for a new scientific method, one based on understanding, on truly scientific observation and awareness. Reductionism is not wrong, it just does not apply in all cases. What our conventional science needs, then, is a strong dose of common sense, a deeper education in the recent findings of science itself, and a rededication to a truly scientific method.

In many ways, the charts or maps of the body/mind continuum from other cultures pale before what we find in our own recent science. Yet in obscure meditational texts, or in metaphor and poetry, one finds a similar perspective and approach. Indeed many of the physicists are using the words of these mystics to describe their own findings. But the physicists themselves have one major weakness--they can describe this reality, but they cannot experience it. And our web-wise children may live and experience that reality, but in an unconscious and unguided way. However,

the models of the traditional cultures, in the preliminary forms presented here, or in the deeper forms implied in this paper, are maps which can show us the way to experience "within ourselves" that view of the universe presented in the descriptions of modern physics.

Let us take Pribram's call for a new scientific method - the pursuit of understanding - and examine its implications for the new generation. As we have seen, this generation already lives in a world which expresses these models and, however unconsciously, they already experience these models directly. One of the major problems in education today may come from children who experience that greater reality as an everyday occurrence in our electronic web of dynamic realtions, yet whose schools try to contain them in another static, much more limited reality. Our children's experience, though powerful, is unguided and largely unconscious. However, we can solve this problem by developing a new paradigm for the body/mind continuum and using it as a basis for consciously training the bodies and minds of ourselves and our children.

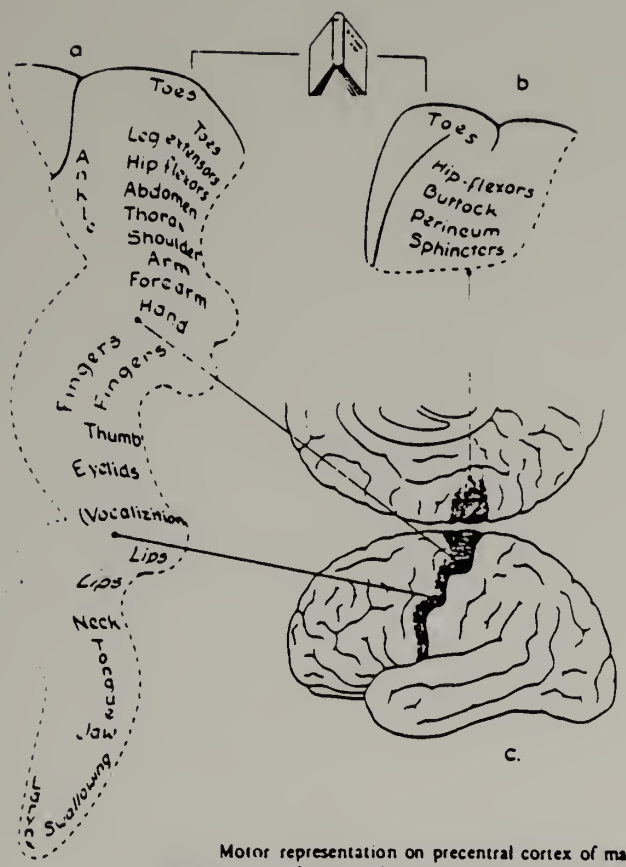
THE HOLOGRAPHIC BODY




Direct photograph (left) and photograph of virtual image of same object through hologram, both in laser light. Note high degree of perfection in holographic imaging attainable with contemporary techniques. From Stroke, 1969.

From Languages of the Brain, Karl H. Pribram, 1971.

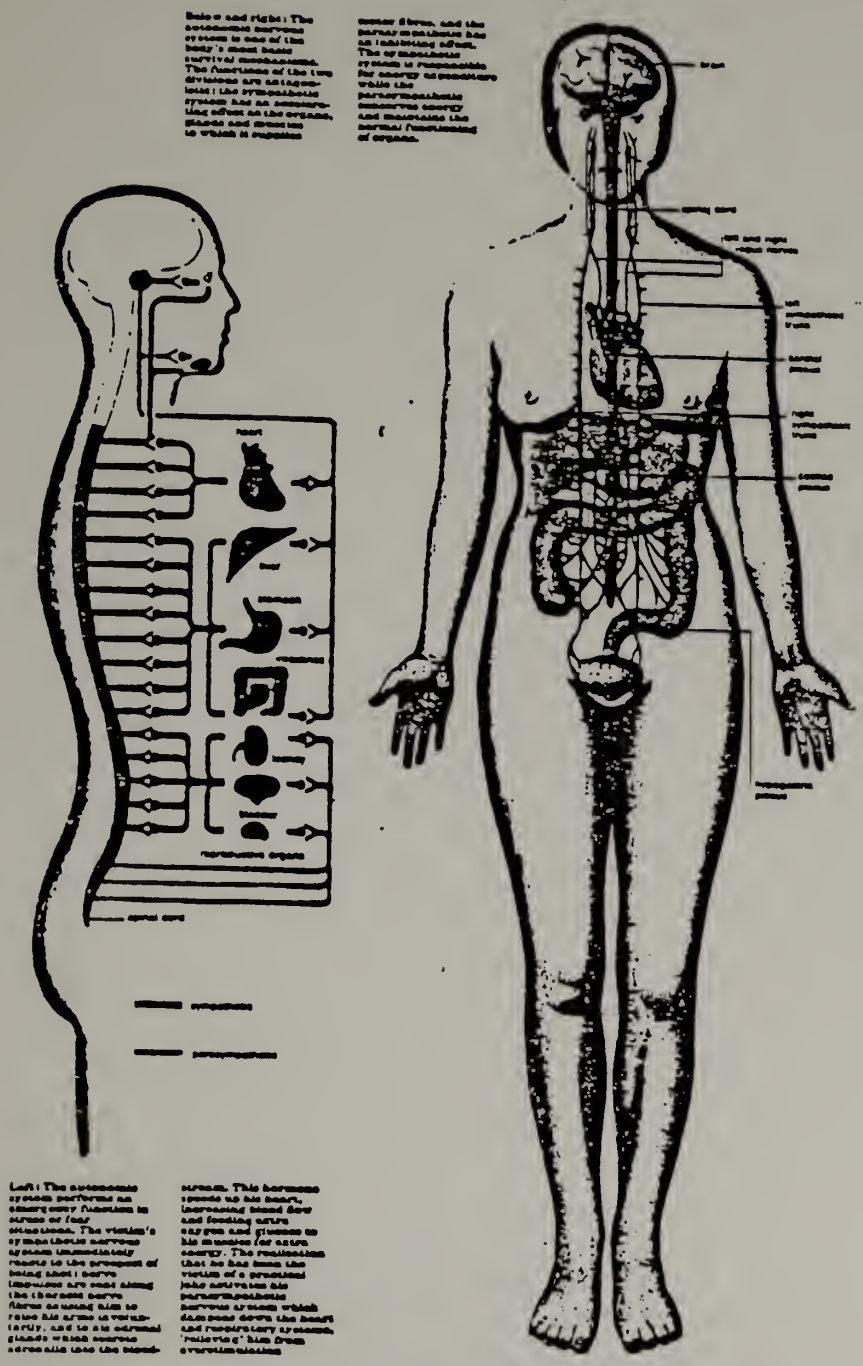
Fig. 42. A holograph.




Motor representation on precentral cortex of man. (c) Diagram of surface of left cerebral hemisphere, showing location of precentral gyrus. (a) Precentral gyrus isolated, enlarged, and viewed from the same aspect as in (c). (b) Medial aspect of the precentral gyrus. Actually there is considerable overlapping and variation in individual cases but the order is constant. From data on electrical stimulation of precentral cortex and observations of the resulting movements obtained by Foerster, Penfield and Boldrey and others. Redrawn after Krieg, 1966.

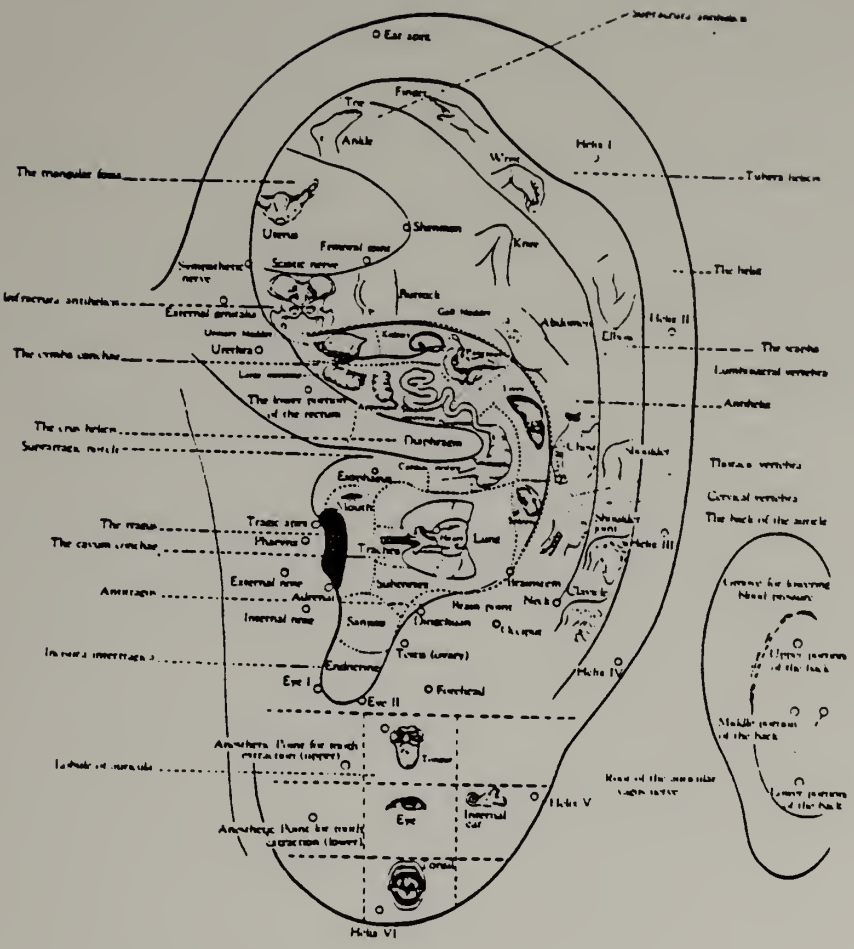
From Languages of the Brain, Karl H. Pribram, 1971.

Fig. 43. The brain as holograph.



From The Illustrated Encyclopedia of The Human Body and How It Works. Exeter Books. 1979.

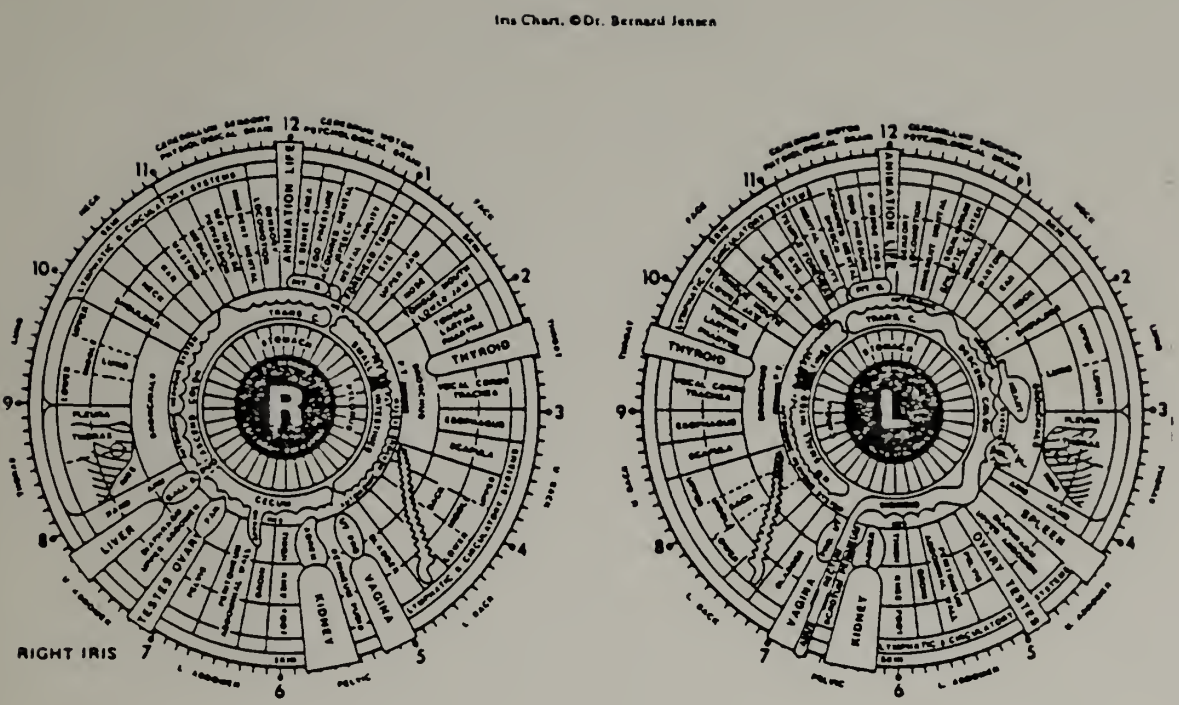
Fig. 44. Western holograph: spine, nerves, organs.



The Corresponding Regional Anatomy of the Auricular Points

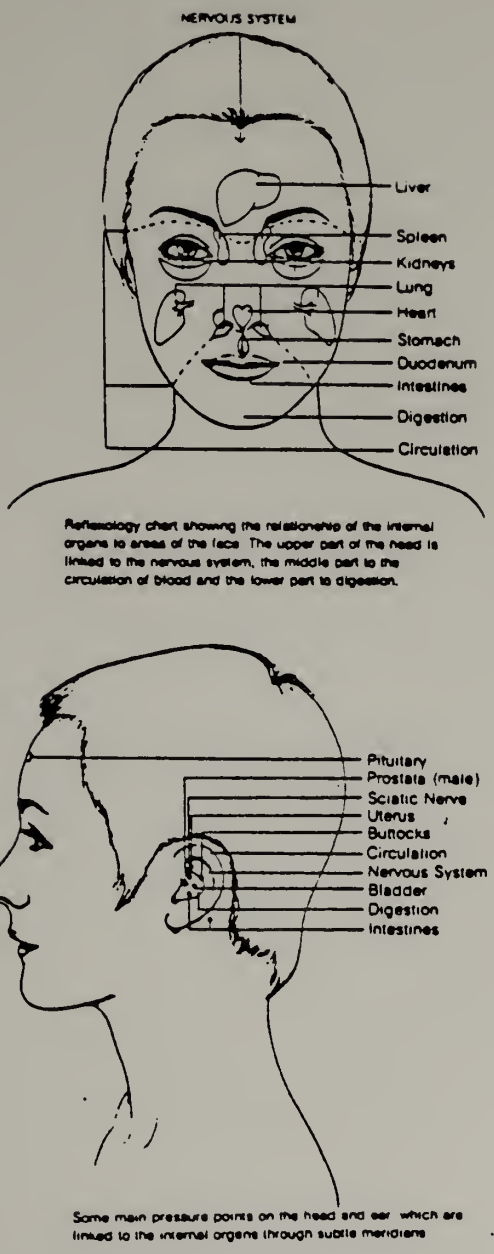
From An Outline of Chinese Acupuncture, People's Republic of China, 1975.

Fig. 45. The holographic ear.



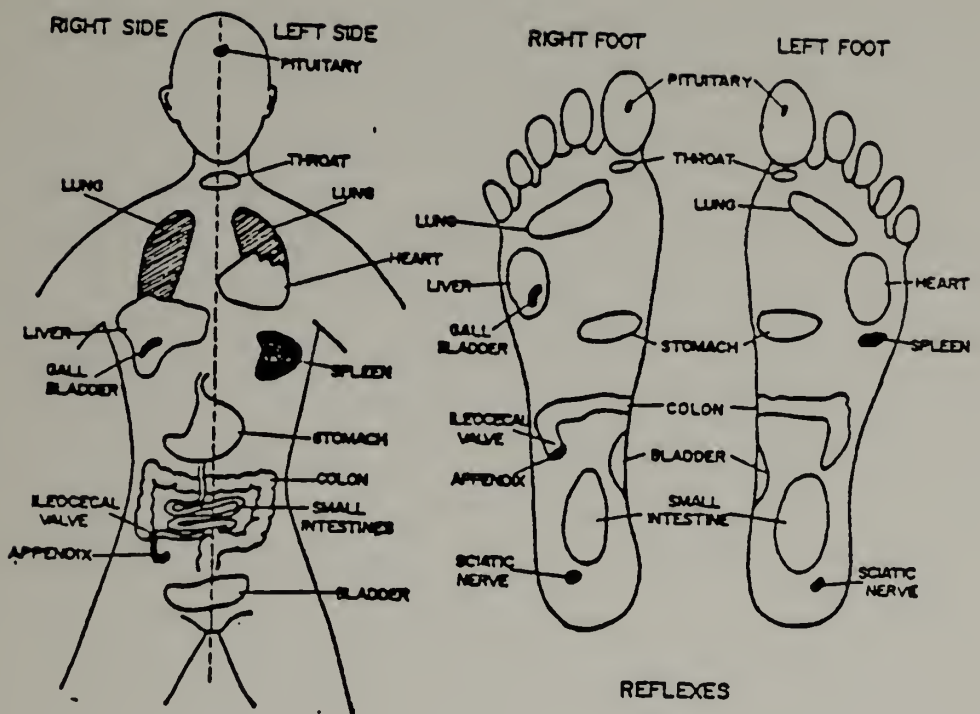

A chart of the iris as it is viewed by the iridologist. A miniature human body is represented in the iris. From The Holistic Health Handbook, Berkeley Holistic Health Center, 1978.

Fig. 46. The holographic eye.



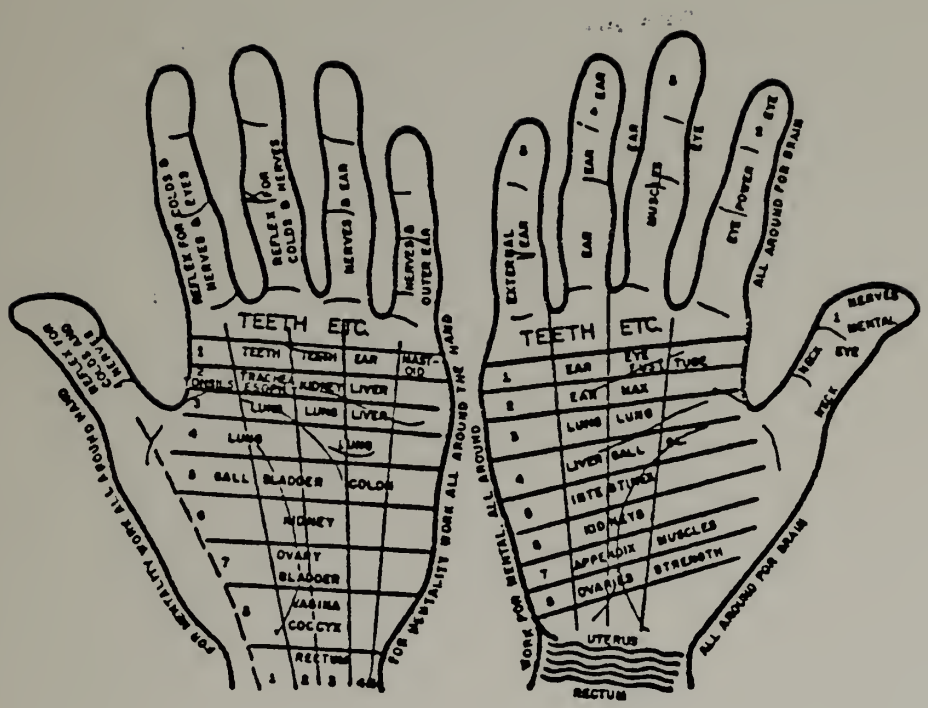

From Sexual Secrets. Nik Douglas and Penny Slinger. 1979.

Fig. 47. The holographic face.



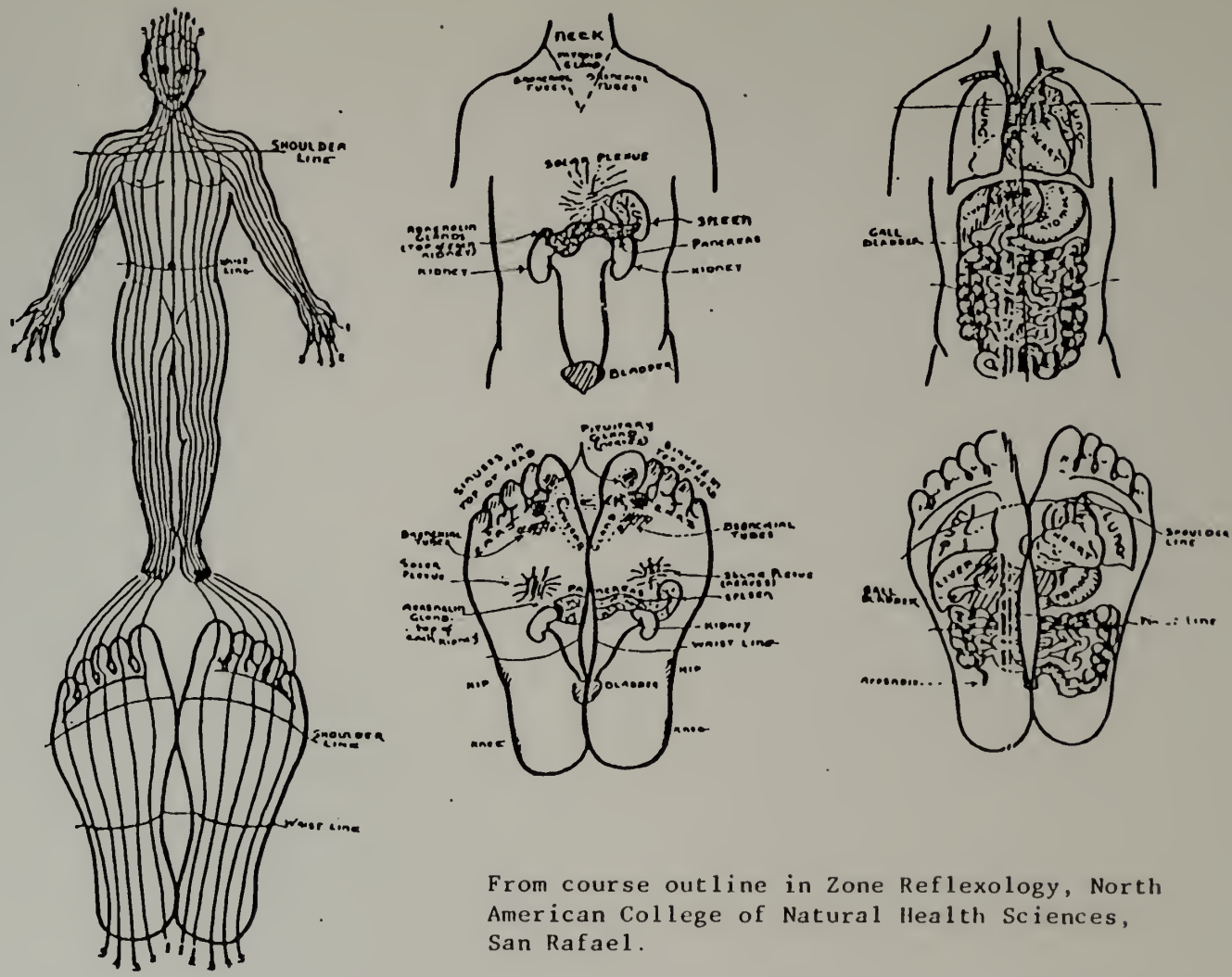

Organs of the body are 'reflected' by certain areas of the feet. From Zone Therapy, Anika Bergson and Vladimir Tuchak, 1974.

Fig. 48. The holographic feet.




From Zone Therapy, Anika Bergson and Vladimir Tuchak, 1974.

Fig. 49. The holographic hands.




From course outline in Zone Reflexology, North American College of Natural Health Sciences, San Rafael.

Fig. 50. Zone therapy: a western holograph.

# CHAPTER X

# PARADIGM OF THE BODY/MIND CONTINUUM

# CHAPTER X

## PARADIGM OF THE BODY/MIND CONTINUUM

The problem in education.

The present crisis in education is more than just the question of why Johnny can't read; more than the debate between conventional versus alternative, disciplinary versus permissive approaches; more than just a return to the three basic building blocks of education, "reading', ritin', and 'rithmetic, taught to the tune of a hickory stick." The crisis is the natural outgrowth of a cultural conflict, a conflict delineated by a radically different and expanded view of how things really are in this world. Some children may benefit from an alternative approach, some from a conventional approach, some from a mixture of the two. But some vital ingredient is missing from all this.

For today's children are already born into web world, a constantly changing, expanding, interlocking cultural matrix. They may know nothing of modern physics or classical cultures, yet they do know, through their own experience and awareness, this world of interlocking electronic systems. They are weaned on television, as well as telephones, radios, computers, video games, jets and highways. Their games and toys all reflect this reality. Then they enter a school system which doesn't clearly know what it is training these children for. To be good factory workers? To be good corporation employees? To learn to read? The school is trying to train children already educated by the experience of the electronic cultural matrix for a culture that no longer exists. The schools provide a map, a model, of a Newtonian land that is no longer there, a land sunk beneath the

waves of the electronic web world. Within its own narrow cultural matrix, whatever choice the schools make about education will not succeed, for the schools themselves have failed to observe and acknowledge the changes going on in the world around them.

Physical education: a place to begin.

But what do we do in the Catch-22 of present day education? If we wish to use our resources and examine the experience of other cultures on this earth, we may find some possible answers, or at least directions of inquiry. As we have stated previously, each of these classical cultures, and in some ways even our own, inculcate their values and world view through what we have come to contemptuously dismiss as physical education, through the awareness and experience of the being -- the body/mind continuum itself. Thus, from these classical cultures, we have an indication of a place to begin.

The fitness boom.

Beginning is no easy task. For we have a mammoth school system, quite resistant to change of any kind. But in typical American fashion, the change has already begun in other areas. In private life, we see the great upsurge of the fitness boom and the profusion of reports of altered states of experience that occur through exercise and athletics. We are suddenly becoming very aware of our bodies, and of the relationship between our bodies and our minds, our bodies and our health, our bodies and our productivity, our bodies and our awareness. Concommitant with the American psycho-physical art of running is the profusion of schools teaching

oriental martial arts - aikido, t'ai chi, karate, kung fu. With these come more of the awareness and world view of the cultures from which they grew. Especially strong is the experience of realizing within oneself the experience of chi, of internal yoga. Similar effects can also be seen in runners' high as well as in the temporarily altered states of perception reported in running and in ordinary western athletics. So a natural change is already taking place from within, from our private lives and personal choices.

Women and athletics.

In addition, we find the greatly increased participation of women in all athletic activities. Indeed, unlike football, none of these physical means to education are the exclusive prerogative of men. There are no barriers of age, sex, race or creed. There may be limitations due to health or disability, but that is all. Recent government policies have encouraged female participation by increasing funding for physical education for women. In Chinese terms, our society is very yang, very male oriented -- aggressive, rational, scientific. Yet the height of yang is the seed point of its opposite, yin, and is the moment of a shift in the opposite direction. We may be witnessing that sort of movement today. Through that most yang of activities - ahtletics - may come that most yin state - intuitive awareness. Indeed, they go hand in hand, are inevitably tied together, as any successful athlete would verify. Therefore, instead of glorifying one over the other, many of us may be moving to an understanding of the constant interaction of both yin and yang within ourselves and our culture. We may be moving to an awareness of balance itself. The sudden increase in the participation of

women, as well as the influx of feminine values, by its own nature can lead us in the direction of balance.

Who's Doing It Now? . . .The Dallas Cowboys

Where can we look for a successful American integration of meditation and the martial arts with computer technology and telecommunications system? The odd answer is professional football. In a business where winning is everything we find one team already employing variations of the methods we've explored. The team? "America's Team", of course, the Dallas Cowboys. As Sports Illustrated puts it:

> In a small cubicle off the Dallas Cowboys' training room there is a gentle gurgle as one of the troops lowers himself into the Sensory Deprivation Tank. He will lie in warm water and think cool thoughts. His brain waves will gradually drop to 12 cycles per second until an "alpha" state is reached. Outside, there's a clack-clack as two linemen bang sticks at one another, as they were taught by the Cowboys' martial-arts instructor. In the office the computer hums and spits out data:[1]

Even the interests of the players are different, as we see in this interview with Dallas cornerback Charlie Waters:

> "How does Waters control what seems to be an excessive amount of energy and aggression? For five years, he's practiced zen - a Japanese sect which teaches self-discipline through mediation. In Waters' dreams, this will be interceptions and tackles at the line of scrimmage."[2]

In simple terms, the combination of meditation and martial arts must work very well or the Cowboys would not use it. Sports Illustrated calls them the "NFL's most coldly efficient team". Ironically, we can look to high level sports competition, from the Cowboys' use of meditation, visualization and martial arts to the U.S. Olympic Track and Field teams use of advanced systems of health care which contribute to improved performance, systems such as Lauren Berry's "physical medicine," Leroy Perry's "kinetic therapy,"

George Goodheart's applied kinesiology, and Landon Rice's naprapathy. Such systems must work very well, must deliver a distinct edge, or such high level competitors would not use them.

Synthesis.

The practice of the oriental systems of martial arts, and the oriental systems of health care and mediation, have led to a respect for the experience of other cultures. The theory of progress, as well as the theory of western cultural and racial superiority, crumbles before the experience of the practitioner. One begins to experience a mosaic of cross-cultural wisdom and perception and a supplanting of rationalism and scientism as the primary values. The parameters of understanding and awareness are greatly expanded and we are enriched.

As the parameters of our own world view are opened, we begin to see the various maps - the maps of Newtonian mind, the maps of new physics, the maps of modern therapies, the maps of the classical cultures -- as a mosaic of overlapping interlocking models, cross-cultural and cross-scientific, of our own nature and of the nature of reality itself. Here are interlocking webs, each with its own dynamic relations with itself and with others, a natural, modern bootstrap approach, each web illuminating part of the mosaic of the universe. In some way, each web of dynamic relations "involves" the other. Mind webs and matter webs, each within the other, not in a Newtonian sense, but in the energetic sense delineated by the new physics.

Starting with the body.

But perhaps the webs do more than "involve" one another. Perhaps they are all holographic in nature. If they are holographic in nature, then the whole picture can be perceived from any minute point of reference on the web. So perhaps the body itself can illuminate not only physical exercise and health, but also the nature of mind, the nature of interaction, the nature of reality itself. We could, therefore, start with the body, with an expanded approach to the parameters of physical education, and use this beginning to overcome the difficulties in the clash of cultures and of world-views that we find today.

Doing the same things with different attitudes often produces different results. Studying the three R's with an expanded attitude may produce different results. While those three basics are important in the functioning of our society, a different awareness in approaching them might lead to a new kind of enjoyment in their study and practice. The present scientific method does not emphasize the pursuit of understanding; it presents only the "rational view" and denigrates other possibilities. If we do present these more modern views of how things are, and encourage students to use their bodies to experience this expanded reality, we can gain not only an appreciation of other cultures and their wisdom, but also an understanding of our advanced work in physics and other scientific disciplines. In other words, we can lay the foundation for a new goal for education as the realization of wisdom rather than just the accumulation of knowledge.

Languages of the holographic body.

To reiterate, if we accept the holographic nature of the universe, then we can start simply with the body, the holographic body. For this pursuit, we need to study the language of the body itself. As higher mathematics is the language of the new physics, so we need to find the language or languages of the body. We need to find the vocabulary, syntax and notation of the human body. (Perhaps computer graphics, such as those developed by Gideon Ariel in Amherst, at University of Massachusetts, could help.) However, we can turn to the already existing maps of the body's languages that we find in both classical and modern times. The yoga of India, the t'ai chi of China, the aikido of Japan, the Alexander technique, the Feldenkrais method, and others, are all useful maps. But rather than any one map being "the way," "the chosen map," the "chosen model of many models," we have an existing, clearly delineated holographic bootstrap mosaic model of the body, the psycho-physical body itself. We must use, then, the great resources we have available to us from other cultures and approaches.

The bootstrap approach to physical education.

By dropping our Newtonian perspective and expanding our parameters, we can see that these different cultural and disciplinary approaches to the body/mind actually constitute, when taken in their entirety, an emerging bootstrap model of the nature of the psycho-physical reality of the mind/body itself. No one system explains it all. No one perspective presents the correct point of view. It is our new expanded attitude itself, our bootstrap approach to physical education, which has allowed us the benefit of the approaches of other cultures and disciplines.

Organizational systems of the body.

From our Newtonian perspective, we see that the body has many different organizational systems -- the muscular system, the vascular system, the digestive system, the respiratory system, the nervous system. But why do we presume that western biology of the last 200 years has managed to discover the only organizational systems in the body? After all, it was just over a hundred years ago when the Royal College of Surgeons split off from its namesake, the Royal College of Barbers and Surgeons. And we see from our brief examination of classical cultures as well as modern times there are many other maps. These are all maps of organizational systems of the body.

Just because we haven't been able to verify them through our narrow physical means and machines does not mean that they do not exist. As a matter of fact, we have been able to verify their existence. German scientists have traced the electrical resistance of all the classical acupuncture points and have developed a machine that records this information. The acupressure points are then treated by cold laser light. This mechanical western approach can also be used to restore equilibrium to the bodys' meridian system. Kirlian photography, biofeedback and thermal photography are only three of many examples of western technological verification of this view of the body. One unexplored area is the constant emission of radio waves from the body. Dr. Barbara Brown of U.C.L.A. cites many studies that show that different organs emit different frequencies.[3] Our exploration of the radio wave emissions of our bodies, and what they mean, has barely begun. From one perspective our body/mind

fabric is composed of a constant stream of radio wave emissions, of different pitch and frequency. In other words, each of us emits our own music, our own unique blend of radio waves, which could potentially be as hauntingly beautiful as the "music of the spheres," which Voyager II recorded where the solar wind met the magnetic field of Saturn. Indeed, one of the great mystical quests is to find one's own chord. Our advancing technology may soon allow each of us to find our own chord. Yet our medical and academic establishment still refuses to acknowledge any such evidence, from our own machines or from classical experience. Perhaps it is due to professional pride or economic greed (the influence of the multi-billion dollar drug and medical hardware industries) or just plain calcified opinions.

Applied kinesiology: a western holographic bootstrap model.

One such composite occidental/oriental map that already exists, the map of applied kinesiology, shows great promise. This map can be extended into a model of kinetic education constructed along the lines of a holographic bootstrap approach. Kinetic education could be based on the acknowledgement of these different organization systems from both eastern and western approaches. And it is open to the addition of more maps, developed by ourselves or others. In accepting the holographic nature of the body, we have found one language, in effect the body's mathematics, through which many of the other systems can communicate to us. The various tests of applied kinesiology, as simple as they may seem to our eyes, and as simple as they are to learn and to do, can open us to a veritable world of information about the different levels and systems of organization of our

bodies and minds.

From this holographic bootstrap model of kinetic education we can express the classical views of meridians and chakras in terms of relevant modern analogies from the electronic web of the global village of spaceship earth. For example, chakras become energy centers, akin to our energy plants powered by different elements, such as hydroelectric, coal, oil, sun. Meridians become the wiring system of the body, the energy canals, channels of communication, one set of pathways through which this energy travels. The acupuncture points become the switching system of these canals, determining whether they are on or off, or they become the sluice gates regulating the flow and the amount of energy.

The word energy.

We shall examine a potential model for kinetic education in the next chapter. For the moment, we need a better definition of the term energy. Energy is a catch-all term, a presently accepted English word used to describe a variety of different interactions. There are over 100 different words in the Eskimo language for our word snow. Our problem with the word energy is similar in this respect. We could substitute the Chinese word chi, or the Japanese ki, or the Indian prana, or the Tibetan lung, but they would all describe different types of snow, of energy, as defined and studied in their own cultures. Perhaps, later, more precise and perfect definitions may emerge in English.

Western cultural analogies.

But how can one describe this energy to the western mind, to doctors

and children alike? It is relatively simple, for examples and analogies abound in the electronic culture around us. I will relate the examples and analogies I use in my college classes.[4] For instance, where does the picture in the television come from? First one has to plug in the set. Then one has to turn it on, and the picture appears. If it is a cable set, the picture comes through a wire. If it's an antennae set, the picture signal comes through the air. Even if it does finally arrive on cable, the picture may have been sent through the air, by micro wave, bounced off satellites. So the picture itself does not come from the set. It travels through the air itself, with or without the aid of wires. The set is an interpreter, it merely receives the transmission, and projects or expresses the picture to us. Perhaps our own body/mind continuums are like those television sets that need to be plugged in, turned on and fine tuned before they, too, can express and project our animated natures. The fruit of the set, the picture itself, is that holographic aspect that travels unseen through the air, and reappears expressively through each of us.

The modern western medical way of repairing a set that didn't work properly would be to open it up, remove the tubes, check and replace them, check and replace the wires. The acupressure way is simple: First, check to see if it's plugged in. Second, check to see if it is turned on. Third, check to see that the cable or antennae is properly connected. Fourth, fine tune it so that the picture appears more clearly. Modern western medicine does not recognize the existence of the fine tuning mechanism, acupressure does. Modern western medicine doesn't recognize the existence of the cable or antennae, classical healing systems do. However, if the classical holistic

approach fails, then the radical intervention and replacement of parts called for by western medicine can be used. So western surgery and drugs become an aspect of a holistic approach to medicine, used when needed and indicated. Brain surgery is not always the right cure for a headache.

Children themselves understand these analogies, for they come right out of their experience and environment. It is comparatively easy to teach them the concepts and maps of acupressure and other classical approaches. These sorts of analogies are quite natural and easy for them. For M.D.'s and other adults, these analogies are often striking, causing them to see from a new perspective. For understanding can come from seeing our functions as extensions and analogies of our very culture.

The bridge of analogy between classical and modern maps.

There is no reason why we can not proceed in the same sort of way, drawing on examples, at least temporarily, from the cultural matrix of web-world itself. It gives us an interesting starting point, a bridge of analogy between classical and modern maps. It gives us the richness of exploration and discovery, for these analogies, in themselves a sort of systems' approach, describe functions and interactions, not things. The analogies leave space for our experience of these interactions, within ourselves and within others. So we are no longer the observer of things but the participants in the dynamic interactions of web-world. And if we perceive holographically, our own body/mind continuum is a point of reference which is a part of the holograph of web-world itself.

Participation and perception.

Participation and perception together give us an experience of the holographic bootstrap nature of our body/mind continuum, and lead to self awareness. This awareness of our nature can lead to the assumption of responsibility for our own health and well being. We can begin to do what we need to do to attain and maintain a state of health and well being. Self-responsibility can lead to self-healing, and doctors, or any health professional, can then be seen, not as gods, but as a vital part of the hologram itself. They can appear as an extension of our own healing natures, of our own responsibility for healing, for sometimes an operation might be not just the best way but the only way.

Tying it all together.

Thus our holographic bootstrap model of the body/mind continuum answers the issues raised throughout this dissertation. It recognizes the interconnecting web of dynamically active relations that constitute our body/mind complex. It acknowledges the delineation of this complex as a mosaic of interlocking maps utilizing cross cultural and cross scientific models. It enhances our new scientific method, the pursuit of understanding, and encourages the classical cultivation of self-awareness, self-discipline, self-responsibility, self-healing and self-education. In addition, some of the organizational systems of the body can be used to determine the "involvement," the interaction, and the state of other systems, utilizing the body's holographic nature to read its own multi-tiered levels of awareness and interaction. Here we may have our somatic mathematics, our common language of the body, allowing us to explore and

develop an ecology of this matrix of the self, our own body/mind bootstrap holographic continuum.

Towards kinetic education.

Above all such a move toward kinetic education embodies that change in attitude and approach necessary in this time of confusion, transition and conflict. Kinetic education, using as a springboard such methods as classical awareness training, gives us fascinating methods and models with which to explore and map our very natures, our minds and our bodies. In itself, kinetic education may be temporary. But at least we have a foundation, a basis for a beginning. As presently conceived, kinetic education's very simplicity makes it easy to teach and learn, accessible to children as well as adults. Since it requires no machines or expensive paraphenalia, and no operator but ourselves and others who have learned its somatic language, it is potentially accessible to almost all. Its very visibility allows us to return some of the responsibility for our own health, well being, education and awareness to ourselves. In as non-threatening a way as possible, we can confirm the experience of the children of electronic web-world about the nature of reality. Without threatening existing institutions, we can teach our children about the nature of the reality of the new physics, classical cultures, and Newtonian mind, as well as the most recent holographic brain research. Thus we can give them a chance to consciously experience this reality through their own minds and bodies. This experience itself, in conjunction with our conventional/alternative type of education can give them a chance to once again learn for learning's sake, for the joy of exploration, for the pleasure of interaction. It may even give us the time

and space to allow our own institutions the breathing room they need to develop and examine themselves in light of our emerging expanded notion of reality. Therefore the experience of kinetic education can give us hints for deriving a new curriculum to suit our present and future needs.

Implications of applying the model to other fields.

With the bootstrap holographic model, no longer can an arm or a leg, or the physical body itself, think it is the whole being, the entire body/mind continuum. Through a change in attitude in physical education, a change toward kinetic education, we can begin to deal with some of the tremendous problems facing us in the fields of physical education and education generally. We begin to perceive the interactions of other fields within ourselves: counseling, health education, medicine, history, physics, science, language, all have the potential for integrating this expanded attitude and becoming bootstrap holographic models themselves, not just of their own formerly narrow fields, but also of human nature and the nature of the interactions of reality. Learning would then turn from reductionism to a much more aware presentation of the various approaches to understanding and communication of the human experience. For all we have described is not reality itself, but the human experience of reality at this time and place.

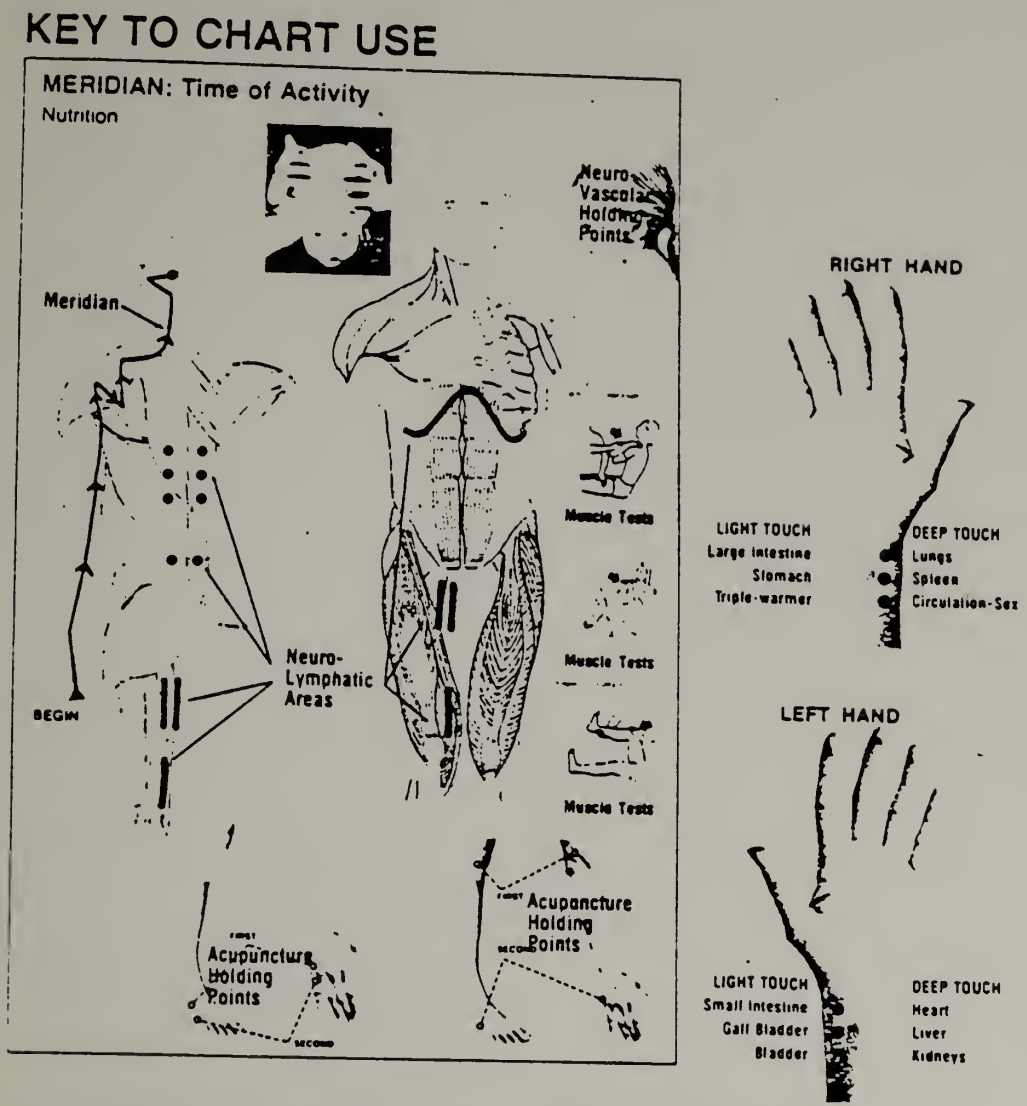
Conclusion.

What we can do through kinetic education is present a new paradigm for the exploration of the energetic anatomy and the kinetic physiology that constitutes the nature of the body/mind continuum itself. Through its

interlocking bootstrap models, our paradigm incorporates both the biology of Descartes and the chakras of India, Newtonian anatomy and Tibetan psychophysical structures, western physiology and Chinese maps of meridians, western neurological models and eastern models of the interactions of the five elements, psychiatry and Burmese Buddhist psychology, applied kinesiology and acupressure. Thus we can draw on both the cross cultural and cross scientific richness of our own world to discover and experience our own natures and the nature of our realities. And we have presented a paradigm for exploring the very nature of our total psyche, our complex and complete body/mind continuum itself, which can lead to the development of the appropriate approaches to health, fitness and education for our "energy body," the "energy anatomy of man."[5] This broader, more genial, more tolerant, more understanding, more observant view of ourselves which is emerging from this new paradigm may even encourage some of us to go beyond our accumulated inheritance of earthly resources and the superficial limitations and explore the heart of reality itself. Armed with understanding and wisdom rather than "facts" and prejudices, we may ensure continuing growth and even increase our own chances for survival.

# THE BODY/MIND CONTINUUM:
# APPLIED KINESIOLOGY'S EAST/WEST
# APPROACH USING BOTH MUSCLES AND MERIDANS

For more information, see "Touch for Health" by John F. Thie, D.C. with Mary Marks




From Touch for Health Reference Chart. See Fig. 52.

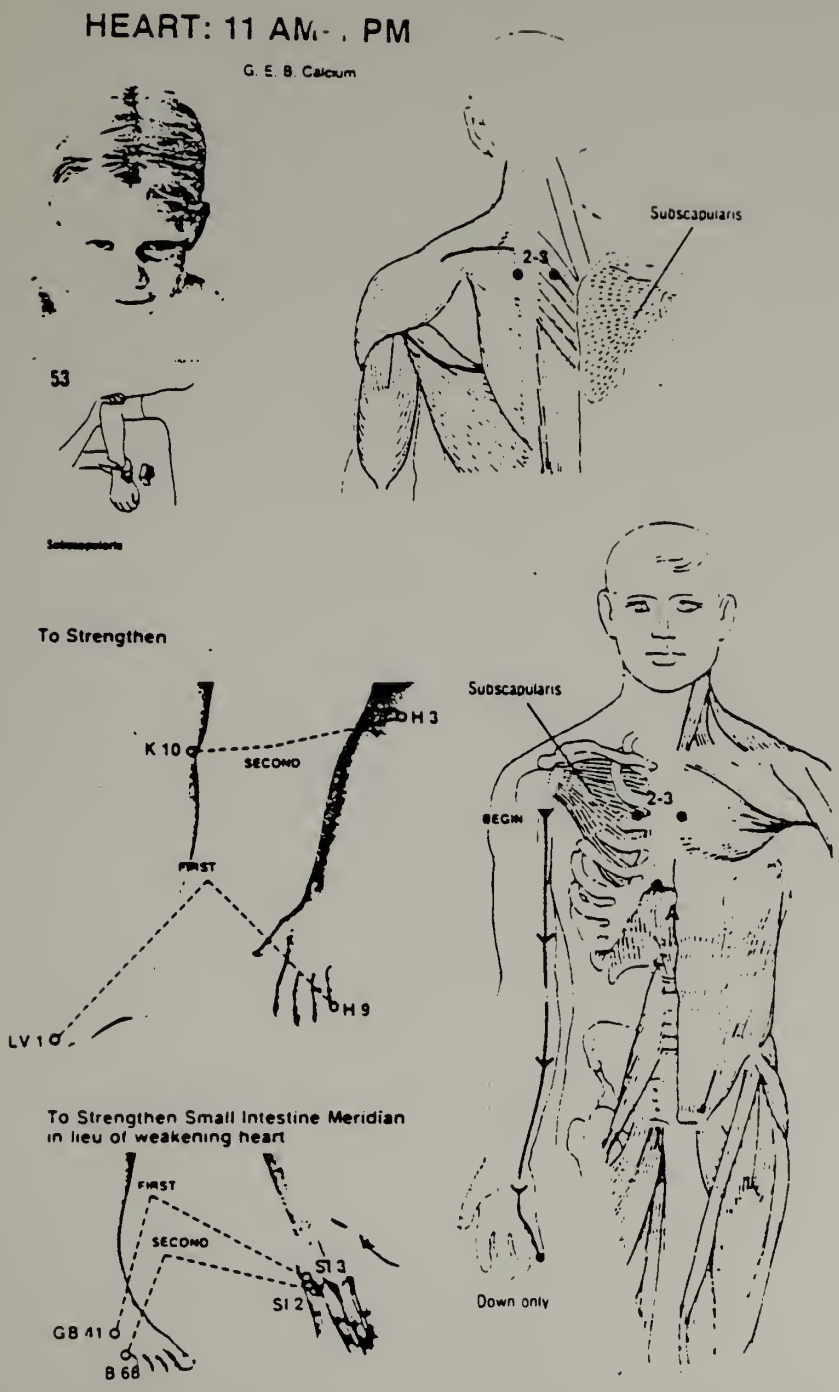
Fig. 51. Key to chart use.

## REFERENCE

| MUSCLE | RELATED ORGAN | MERIDIAN | TIME |
|---|---|---|---|
| Abdominals | Small Intestine | Small Intestine | 2 PM |
| Adductors | Sex | Circulation-Sex | 8 PM |
| Ant. Deltoid | Gall Bladder | Gall Bladder | 12 Mid. |
| Ant. Neck Flexors | Sinuses | Stomach | 8 AM |
| Ant. Serratus | Lungs | Lung | 4 AM |
| Ant. Tibial | Bladder | Bladder | 4 PM |
| Brachioradialis | Stomach | Stomach | 8 AM |
| Coracobrachialis | Lungs | Lung | 4 AM |
| Deltoids | Lungs | Lung | 4 AM |
| Diaphragm | Lungs | Lung | 4 AM |
| Fascia Lata | Large Intestine | Large Intestine | 6 AM |
| Gastrocnemius | Adrenals | Triple-Warmer | 10 PM |
| Gluteus Maximus | Sex | Circulation-Sex | 8 PM |
| Gluteus Medius | Sex | Circulation-Sex | 8 PM |
| Gracilis | Adrenals | Triple-Warmer | 10 PM |
| Hamstrings | Large Intestine | Large Intestine | 6 AM |
| Iliacus | Ileo-Cecal Valve | Kidney | 6 PM |
| Latissimus Dorsi | Pancreas | Spleen | 10 AM |
| Levator Scapulae | Stomach | Stomach | 8 AM |
| Lower Trapezius | Spleen | Spleen | 10 AM |
| Opponens Pol. Longus | Spleen | Spleen | 10 AM |
| Pectoralis Maj. Clav. | Stomach | Stomach | 8 AM |
| Pectoralis Maj. Sternal | Liver | Liver | 2 AM |
| Peroneus | Bladder | Bladder | 4 PM |
| Piriformis | Sex | Circulation-Sex | 8 PM |
| Popliteus | Gall Bladder | Gall Bladder | 12 Mid. |
| Post. Neck Extensors | Sinuses | Stomach | 8 AM |
| Post. Tibial | Bladder | Bladder | 4 PM |
| Psoas | Kidneys | Kidney | 6 PM |
| Quadriceps | Small Intestine | Small Intestine | 2 PM |
| Rhomboids | Liver | Liver | 2 AM |
| Sacrospinalis | Bladder | Bladder | 4 PM |
| Sartorius | Adrenals | Triple-Warmer | 10 PM |
| Soleus | Adrenals | Triple-Warmer | 10 PM |
| Subscapularis | Heart | Heart | 12 Noon |
| Supraspinatus | Brain | Central | 8 PM |
| Teres Major | Spine | Governing | 12 Noon |
| Teres Minor | Thyroid | Triple-Warmer | 10 PM |
| Trapezius | Spleen | Spleen | 10 AM |
| Triceps | Pancreas | Spleen | 10 AM |
| Upper Trapezius | Eyes & Ears | Kidney | 6 PM |
| Quadratus Lumborum | Spine | Large Intestine | 6 AM |

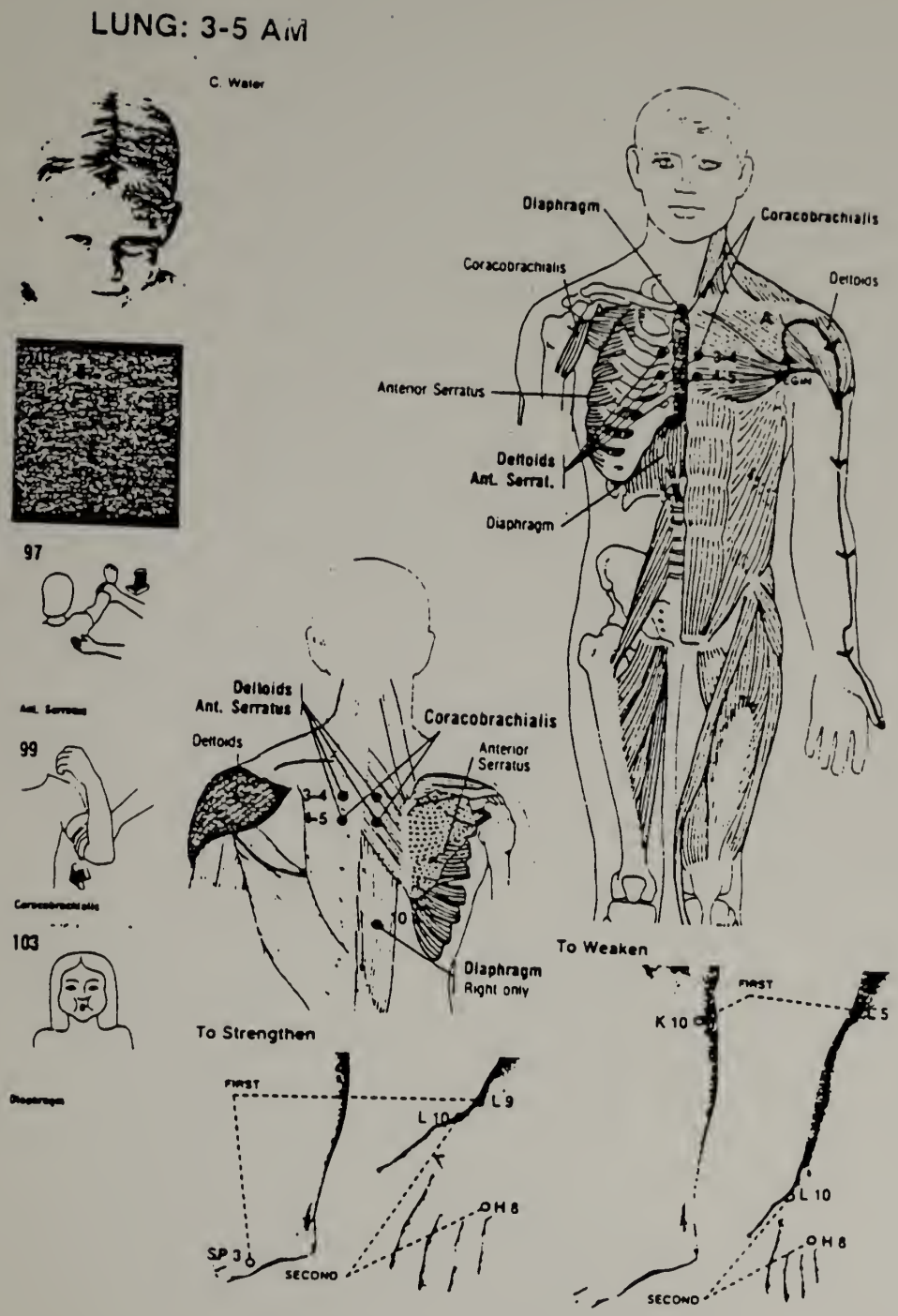
From Touch for Health Reference Chart. See Fig. 51.

Fig. 52. Chart of the muscles, related organs, meridians and time of day.



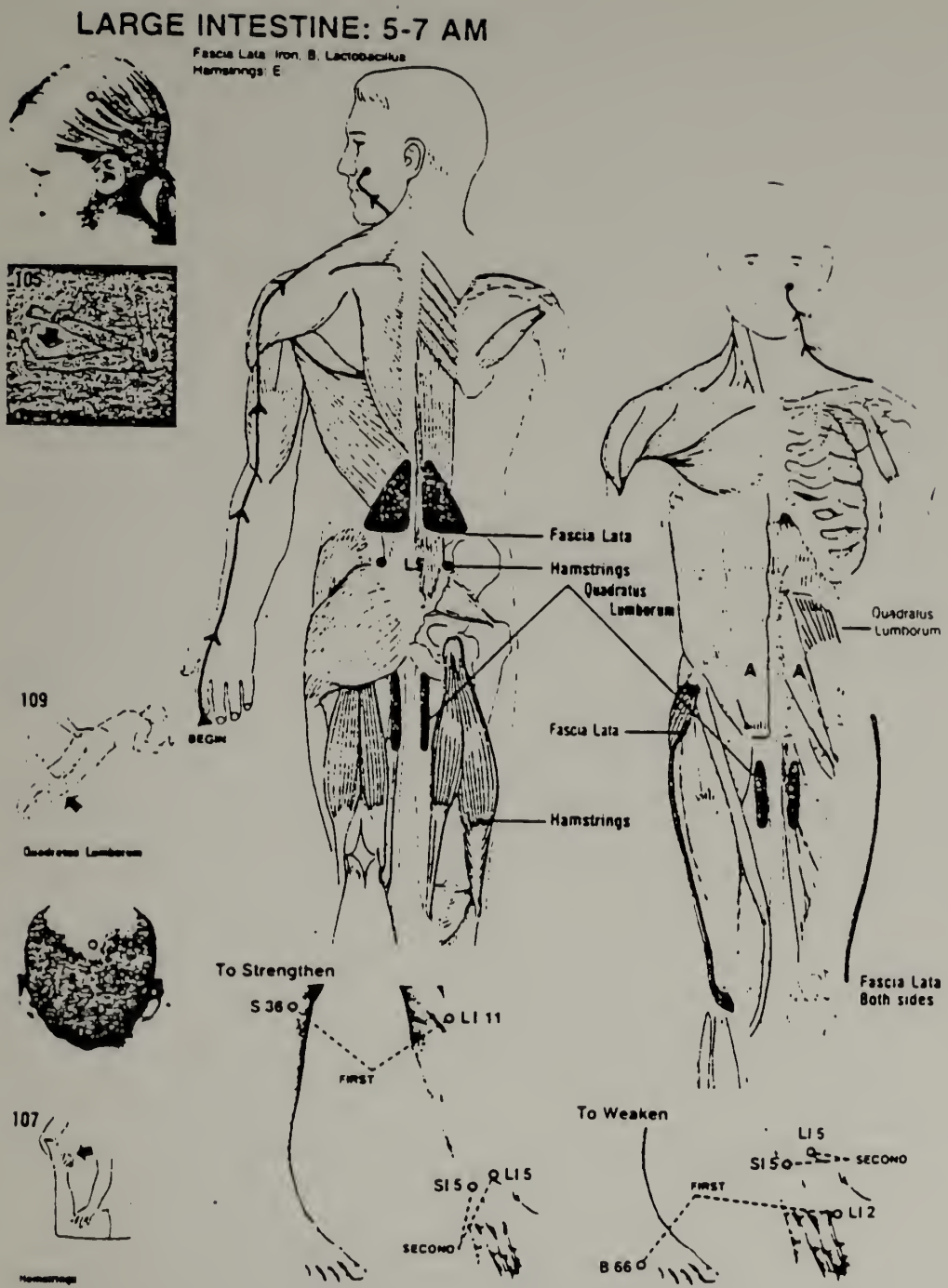

From Touch for Health Reference Chart. See Figs. 51 & 52.

Fig. 53. Heart.




From Touch for Health Reference Chart. See Figs. 51 & 52.

Fig. 54. Lungs.




From Touch for Health Reference Chart. See Figs. 51 & 52.

Fig. 55. Large intestine.

# CHAPTER XI

## AN AMERICAN MODEL FOR KINETIC EDUCATION

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## AN AMERICAN MODEL FOR KINETIC EDUCATION

We have proposed a new paradigm for the body/mind continuum, and rooted it in a "dissipative holographic bootstrap mosaic" of interacting models, each of which involves the other, and through each of which one can perceive, however dimly, the resolution of the others. Our presentation can appear enormous in scope, and complex beyond either understanding or application. Yet we have seen how this approach has allowed us to draw on all of our rich cross-cultural and cross disciplinary heritage, using the potential resources and perspectives of our whole earth to view, ultimately, ourselves. In our own body/mind continuums, we have found not only an open-ended multiplicity of processes and perspectives, but also that single point of reference from which to perceive and experience that very multiplicity. We ourselves are that very paradox which Pribram suggested we use to train our own children, much as the Japanese use koans and haiku to train themselves and their children. The very "perturbations" and "fluctuations" we perceive in ourselves and in our culture are even now triggering changes in our own unstable, self-organizing systems which may enable us to leap from our old patterns or temporary forms to a newer organization of another order, coherence, and complexity -- the body/mind continuum. And that continuum is a dissipative holographic bootstrap mosaic of interlocking continuums, a veritable web of dynamic relations and interactions.

Yet for all this complexity, there is at the core a classical simplicity. For here is a paradigm we can perceive and experience directly in our own bodies and in our own body/mind continuums. For it is the potential for

direct experience which rescues us from mere abstract, theoretical musings on the nature of reality and of ourselves. Also, with the potential for experience comes the possibility for educating others to perceive and experience for themselves, in their own unique ways, this paradigm.

The key: psycho-physical education.

Our key becomes education, and in particular the use of physical education, as a means to open ourselves to the reality of this new paradigm. We must start simply, and start with the body. Here I propose a uniquely American model for kinetic education, that psycho-physical cultivation without which, as John Dewey put it, "our professed education is likely to be miseducation."[1] Ironically, kinetic education answers the call made in 1920 by that prominent New England medical educator, Dr. George V. N. Dearborn, who crusaded for recognition of the kinesthetic sense -- "the ways of the sensation-fabric -- the personality's dynamic index of the body."[2] Dr. Dearborn was instrumental in making this "crown of the senses" an important consideration in the national physical fitness campaigns of the 1920's.

Dr. Dearborn recognized one major problem, that the sometimes overwhelming sense experience of light, color and sound drown out this subtler experience "of the essential existence of these warp threads in the fabric of our conscious life."[3] Yet for the Burmese Buddhists that potential distraction is the very basis on which to begin the practice of insight meditation. The Burmese begin by cultivating mindful awareness of each of the sense gates -- sight, sound, smell, taste and touch. For the Burmese, these sense gates were themselves the pivotal point of the body/mind

continuum, for here one could directly experience and perceive those intertwined paradoxical aspects of our being: unique and one-pointed yet open-ended and encompassing.

Kinetic education: training the awareness.

The vital first aspect of kinetic education is training of the awareness to perceive and participate directly. We train ourselves to observe and to acknowledge whatever is going on in our environments, in ourselves, in others, and in our own gates of perception. This perspective of perception and participation continues throughout whatever we do, providing a foundation from which to experience that equally vital second aspect of kinetic education. The offshoot of Dewey's call for a psycho-physical education, this second pillar features the three aspects one finds in all classical systems -- meditation, movement and medicine. Yet this classical delineation is specifically adapted to American needs, with meditation, movement and medicine all having their own American derivative in the system of kinetic education. For instance, for psycho-physical movement we have variations of the simple cross lateral exercises designed to balance the right and left hemispheres of our brain. For meditation, we have awareness training and the use of specific emotional stress release points on the forehead. These "blue sky points" promote relaxation as well as a transformation of the fog of entangled emotional or mental blocks into the clouds which constantly arise and pass away in the blue-sky of our continuums. For medicine, we have pressure points which, when done in sequence, promote balance in the muscular and meridian systems of the

body. Thus each of these classical aspects is expressed in a distinctly western manner.

The kinetic education mosaic.

Thus kinetic education will utilize the following combination of approaches. We will begin with awareness training: awareness in rest, awareness in motion, awareness in stillness, awareness in activity. We will train ourselves to observe, perceive and directly experience what goes on in our body/mind continuums. Then we will enhance and strengthen our awareness training by utilizing the classical pillars of psycho-physical education, meditation, movement and medicine. Hence there are many different systems, and combinations of systems which can be used. An area with a large Japanese population might be able to use zen meditation, aikido movement, and shiatsu medicine. An area with a large Chinese population might be able to draw on chan meditation, t'ai chi movement, and acupressure medicine. Many American cities and towns may not have such cross-cultural fertilization to draw upon. Another area might use Christian meditation, the Alexander method of movement, and the American zone reflexology system of self-help medicine. However, based on personal experience, I would begin with the simple American system of kinetic education.

To enhance movement, this system of kinetic education begins with cross-lateral exercises which balance the muscles and the meridians as well as the communication between the right and left brain hemispheres. To enhance meditation, this system utilizes two acupressure points on the forehead which are touched very lightly by the fingertips. This light contact

between the fingertips and the forehead actually promotes relaxation and stress release. To enhance health, fitness and well-being, this system utilizes a series of acupressure points which help promote balance in the muscular and meridian systems of the body. In addition, various muscle tests, which relate not only to muscles but also to meridians, can be used to demonstrate and to experience the imbalances in these systems. When the proper correction points have been activated, these same muscle tests can be used to ascertain the effect of the correction, and the resulting balance or the continuing imbalance. The muscle tests, being an obvious mechanical system of the 'rational' body, are highly effective in demonstrating to those afflicted with western mental blindness just how well these other systems work. These muscle tests are useful for demonstration, and they are important for more advanced therapeutic work. However, they are not necessary for the simple, easy to do system for everyday use that has been outlined.

This particular system of kinetic education is flexible, for it can be used to enhance the workings of many other systems. As a physical fitness program grows from these simple tools, we will also need to integrate advanced work such as Bob Anderson's Stretching exercises, or the exercises recommended by the President's Council on Fitness. Some of the pressure points, since they directly affect the action of the muscles as well as of the meridians, are ideal for use when stretching out tense muscles or when strengthening weak muscles. Just exercise, plain calesthenics, can enhance "beautiful strength," which is the root meaning of calesthenics.

An abbreviated version of this system can be done in a very short

time, even in a minute or two. I propose that we use a simple version of this system of kinetic education much as the Chinese and Japanese use their systems in their schools. In the Chinese schools, students take a brief one or two minute break every few hours and press the acupressure points designed to promote mental relaxation and enhance eyesight. In the Japanese corporations, workers and management alike begin their shifts with a few minutes of "beautiful strength", psycho-physical exercises designed to promote relaxation, centeredness, balance, alertness and concentration. In both our schools and our corporations, we too can proceed with our own program of psycho-physical fitness, designed to promote health, well-being, relaxation, centeredness, balance, alertness and concentration. The benefits to us individually, educationally, economically, and culturally may be immense.

Yoga has been used in India to give people an experience of the Indian view of how things are. Our present version of physical education conveys to us the experience of the 'rational view' of how things are. Likewise, we can use kinetic education to convey to us the experience of the paradigms of modern physics, of the classical cultures, and of the body/mind continuum itself. In other words, we could begin to teach even elementary school children the basics of the views of the universe and of ourselves expressed in modern physics. Through kinetic education we could allow them to experience directly within themselves the reality of our expanded view of the universe. Far fetched? Not at all. Here is a simple, practical way to impart these scientific realities to our children, and to have them not only study them but also to experience them. In so doing, we can give them a

basis in health, fitness, knowledge and awareness for superior functioning in our world of modern reality.

A prime method for education by experience, awareness, and observation will be the classical method of education by analogy. We can use our children's innate and instinctive experience of computers, video games, television, telephones and telecommunication systems as the basis for simple, clear analogies drawn from an environment familiar to them to show them how to perceive the workings of ourselves and our universe. Through such analogies, as well as through direct experience, our children could attain as deep an understanding of our universe, its interactions, its cultures, its sciences, and of themselves as we now possess. Thus we could lay the basis for true education and for its function in our modern world.

In cooperation with the corporations that produce computers, video games, television, telephone and other telecommunications systems, we need to teach our children, from an early age, explicit "computer literacy," "video literacy," and "telecommunications literacy." An essential element in technological literacy is a comprehensive education in language, mathematics, science, history, communication skills, and other basics of education. Not only can we learn the skills of basic education, we can also learn the computer-telecommunications skills necessary for functioning well, economically, socially and personally, in our electronic web world. Our whole nation, in particular our business and educational communities, would greatly benefit.

Therefore we must embark on a national campaign for psycho-physical fitness, health and well-being. Perhaps we can look to the lessons of Dr.

George Dearborn's national health campaign during the presidency of Calvin Coolidge. A major element for such an approach will be kinetic education, with its intent to educate ourselves and our children about the modern notion of reality through analogy and direct experience and with its use of technology, computers, video, and telelcommunication systems as major tools for education as well as for business. Now let us learn more about some of the particulars of kinetic education.

The various systems.

The fascinating and still developing system of kinetic education is grounded in a Newtonian view of the body. Kinetic education uses the mechanical Newtonian body as a base from which to explore, read and use other approaches, including those of the east and west. It has been influenced by previous western modalities such as applied kinesiology, behavioral kinesiology, bio-kinesiology, integrative kinesiology and kinetic therapy. It is a truly composite system, using models from different western scientific and healing disciplines, especially physical therapy, osteopathy, chiropractic, nutrition, stress reduction, brain research and exercise, with eastern models, especially the classical meridians and acupressure points.

From western physical therapy come various muscle techniques, including origin and insertion, the golgi tendons, and the spindle cell mechanism, as well the muscle tests as outlined in Kendall and Kendall's Muscles: Testing and Function.[4] From osteopathy comes Chapman's reflexes,[5] a series of trigger points which control the "valves and flows" of the lymphatic system, especially the lymph system as it relates to various

organs. From chiropractic comes Bennet's reflexes, a series of points primarily on the head which govern the flow of blood to various organs. Bennet researched these in front of a fluoroscope in the 1930's. He compiled 8 years of explicit documentation before he died of radiation poisoning.[6] From traditional Chinese medicine comes the basic meridian system with the addition of two of the extraordinary meridians, which the Chinese call the governing and conception vessels. Also from the Chinese comes the use of various arrangements of acupuncture points, including the alarm points, the command points and the mother-child and grandmother-child points. In the classical five element system, the nature of the relationships between various meridians, as well as the flows and interactions of energy between those meridians are explained by using the analogies of the ideal relationships within the "family" and within the "state". In addition, the system integrates various other approaches from other disciplines, including nutrition, stress reduction, brain research and exercise patterning. In fact, the system is open-ended.

How these diverse systems work together.

How does it work? How do all these diverse elements fit together -- and yet leave room for other additions? Its primary approach is simple and classical. In China, the doctors read the condition of the patient, the patient's own complex web of internal and external relations, through several methods. First they read the pulses, located on the inner side of the wrist below the thumb. Unlike the western approach, they could determine at least 12 pulses, six on each side, 3 deep and 3 surface. Accomplished doctors could read a staggering variety of relationships -- in effect perhaps

the entire medical history of the patient -- from a brief reading of these pulses. To be accomplished at pulse reading might take 20 years of apprenticeship and training under a master and 20 additional years of practice.

Chinese doctors also read the face, thus practicing physiognomy. Some of them would put acupuncture needles only in the ear to treat the whole body, although others used different systems. The principle, then, is that every part of the body has a map of every other part within it -- if we only know how to read the signs. It's not such a strange principle, for in the west our science has found that the DNA molecule has the imprint of the whole body on it. We have even cloned animals from the single cell of another body. In neurological research, our physicians have tried to identify certain sections of the brain with the appropriate function or part of the body. However, some areas, especially the pulses and the face, are more easily read than others.

The holographic basis: maps within maps.

A similar system is employed in Tibet, except that some of their doctors read all the pulses from one place on one forearm of the patient. In Burma, we again find a similar approach, except that in this Buddhist culture with its own conventions, it is impolite to stare at another's face. Therefore some of their doctors do not read faces, they read hands. While holding the pulses, Burmese doctors will examine the hands, thus determining the health and medical history of the patient. In the orient, it is considered a great insult to point one's feet at another. But not in America. In America, in the zone therapy system, the foot is palpated, and

tender areas indicate the condition of the zones and the organs located on these zones. We also have iridology, where tendencies in our constitution can be read through the eyes. In Japan, in the shiatsu system, the abdomen is palpated, and shiatsu uses hara diagnosis. Why do these systems work? Because, from both a classical and holographic perspective, each part of the body has a map of all the other parts on it, if one can read it. And the muscles themselves constitute such a system.

Advantages of the muscle maps for westerners.

The basic physical therapy muscle tests are not used to test power factors or measure to some norm. Instead, the tests are used to read the state of various organizational systems in the body. The muscle tests are used the same way the Chinese use the pulse tests -- to provide information about the state of the body and the mind. Pulse testing is distinctly eastern, muscle testing distinctly western. For the results of muscle tests are readily apparent. First you can see the results -- you can see clearly whether the muscle when tested is weak or strong -- or more accurately "blown out," "mushy," or "locked in place."[7] Second, you can easily feel the results of the tests. Third, you can see and feel a different result after the proper correction points have been used.

This is not a case of someone holding your wrist for 30 seconds, then sticking a needle in your big toe to make your headache go away. Acupuncture can be a rather mystifying system to some western minds. But then so can the western approach of swallowing a pill, sending the aspirin to your stomach, to make the headache go away. The action that corrects (the needle or the pill) and the area of application (the toe or the mouth and

stomach) seem unrelated to the nature and location of the problem -- a headache. Although both methods work, there seems to be no readily apparent relationship between correction and result. Here is where applied kinesiology differs. For a headache, one can check the muscle tests and determine which muscles are "weak," "imbalanced" or "blown out." Then one can do the correction points. As the headache goes away, sometimes in a matter of minutes or even seconds, one can retest the muscles and find them to be balanced, strong and locked in place. Thus there appears to be some relationship between the results of the tests, the problem, the correction, and the retesting.

A clear mechanical resolution.

Why is this so? In looking at the body/mind as a hologram of a non-linear interlocking mosaic of different models, systems and relationships, we see that in one part of the body one can see a reflection, however faint, of all the other systems. Biochemistry operates on a somewhat similar basis. However, the resolution in some parts of the holographic body is clearer than in other parts. Also, the perspective bias (the point of reference) of one culture may highlight a particular system, making it easier to read and clearer than it would be from the perspective of another culture. We find diagnosis of pulse and face prevalent in China, while in Buddhist Burma we find diagnosis of pulse and hand. In our Newtonian culture, the muscles and the mechanical muscle tests are an obvious place to start. The muscles and how we use them are a direct expression, though from an expanded perspecitive, of our Cartesian biology and medical model as well as of our own larger Newtonian culture. For

these cultural reasons, they are a good place to start. Results are easy to record, for one can readily see or feel -- or even measure -- the results. From our Newtonian approach and perspective one can easily record the results of the tests in ways that we can understand. Also, from a holographic point of view, the muscles are a large part of the body, thus the holographic resolution is clearer to us, in both a cultural and an actual sense. Since the tests are rather obvious, being clearly on a gross, physical level, they are easy and simple to learn and do. In particular they are readily accessible to almost anyone. Therefore the muscle tests are an excellent system for those of us from our culture to learn to use to read the state of different systems and relations in the body/mind complex.

Reading the meridians and the interrelationships.

But what do they read? Taking our holographic bootstrap mosaic metaphor one step further, the tests theoretically can potentially read just about anything.[8] However, there are other methods which are far superior in many areas, so common sense is necessary. However, the tests do give interesting information about certain basic systems and their interrelationships. One can even read the meridians through the muscle tests, and from the meridians one can read the state of different functions throughout the entire body. Each organ itself can be viewed as a concrete manifestation of each function. Cells also eat, digest, and excrete in their own way. Therefore, the western muscle tests are used to read the state of the meridians, as well as various interrelationships in the body/mind itself.

A universal kinetic sign language.

In effect, the muscle tests give us a common language for our own personal "web-worlds." The tests operate as sort of a kinesthetic universal sign language that transcends the barriers of different regions, relationships and systems of organization in the body. Like a sign language it has certain advantages and limitations. It is rudimentary, and works best on the physical level. This level includes basic systems from both eastern and western approaches, including the muscles and their movements, and the meridians and their points. From the Chinese point of view, the meridians are a basic, rudimentary physical system, but one through which one can reach and influence the other systems by using the acupressure points. One can regulate and balance many of the systems of the body and the mind through use of the acupressure points.

The body's "Basic" and "Fortran".

Empirically, we have found that certain muscle tests can be used to ascertain the condition of certain meridians, and the appropriate acupressure points can then be used to correct and balance the flow of energy on that meridian. A subsequent muscle test will then reflect the new condition of the meridian. In simple terms, a muscle which first tested "weak" or "blown out," can be retested after using the correction points, and found to be "strong" and "locked in place." Thus the muscle tests are a fast, reliable way to indicate what is going on in some channels of communication in the body's own computer. In other words, the muscle tests can become a simple, readily available language, a language for programming and communication for our own systems. Like APL, or Basic or Logo, all

designed as tools for communication, it can be taught to almost anyone. It can give all of us a potential tool to indicate what needs balancing in our body. However, it must be kept in mind that these muscle tests, coming from a gross, physical system, give their most accurate readings on other gross physical systems. But these systems involve and influence all other systems in the body.

Exercise and nutrition: unique individual solutions.

The acupressure points, which are in effect a programming language for our organizational systems, are not the only way to correct imbalances. One can also use other physical systems, such as nutrition and exercise, much as one uses Fortran as a programming language for computers. In each case, the corrections apply only to the person tested. (Since there is no norm, the practitioner must take time for each individual) In other words, in those very areas where Pelletier finds western medicine not only weakest but in greatest conflict --nutrition and fitness --this system is strongest. Yet one does not derive norms or standards. Everyone is different; a particular combination of foods, exercises and points to help one individual would not necessarily help another. In fact, it might create the opposite effect. Perhaps one problem of western medicine is that it is trying to find norms in an area which is highly individual and unique. Another problem is that western results are perhaps greatly influenced by the desired results of various food, drug and health-related industries. The classic example is the 1940's test that showed that we derive as much nutrition at breakfast from a bowl of corn flakes and milk as from bacon and eggs. This test has had tremendous influence on American breakfast habits, life and economics. It

was sponsored by General Mills.[9]

The beauty of the muscle tests is that one can determine for oneself what is best to eat, and for how long and when. Does this combination of foods taken at this time contribute to one's overall balance and muscular strength and organization, or detract from it? It returns a certain amount of power to the individual and the family. Corn flakes and milk might be best for one child, eggs and bacon for another. From these tests we can get some indication of what is best for us. I can speak from personal experience, for I had severe allergies during one period of my childhood. Later on, I found I had a reaction to milk. When milk was eliminated, or used sparingly in my diet, the allergies disappeared. During that allergic period I had to "drink my milk" before I left for school. A simple muscle test might have shown that milk left my stomach meridian disorganized, but bacon and eggs, which I greatly preferred, made that meridian more balanced. I might have avoided a problem that caused me a great deal of difficulty for a number of years. However, one could hardly expect that the dairy industry, as well as other agribusiness industries, would support a system that could give so many people some indication of what foods enhanced greater balance and were best for them.

<u>The muscles and meridians: balanced and organized.</u>

What the muscle tests show has been termed "balance" or "strength." The English words do not really fit. In my opinion they show whether a system stays organized. Under certain conditions, the muscle system and the related meridians stay organized and balanced, which can be shown by a "strong," "locked in place" test result. Under other conditions, these

systems become disorganized and unbalanced, which is shown by a "weak," "blown out," or "mushy" result. The tests show whether two major systems, the muscles and the related meridians, as well as various other related systems, remain or attain organization and balance. This whole concept is easy to show or demonstrate, but more than a little difficult to explain on paper. Instructional video tapes would be useful. However, the best method is simple personal demonstration, and the personal and group experience of those involved.

Methods of correction.

Organization or balance can be brought to a system by the use of various methods of correction. The principle method is the use of the appropriate acupressure points activated in the correct sequence. However, one can also use nutrition, stress reduction techniques, deep breathing, or exercise, as well as other methods. The muscle tests merely give a reading, sometimes an instantaneous reading, as to what is going on. The tests also show how successful the correction has been. And the tests are open ended, for one can test the success of many different types of correction.

Use by health care professionals.

Among health care professionals, Dr. John Diamond, M.D., uses muscle testing and behaviorial kinesiology as the basis for balancing the mind and the emotions in his practice of psychiatry. Dr. James Scott, Ph.D. and professor at the University of California, San Francisco, Medical School, uses muscle testing as the basis for his private practice in nutritional counseling. Dr. Angela Longo, Ph.D., professor of acupuncture and Chinese

medicine at San Francisco State University, uses a related system of testing, in combination with the Chinese model, in her classes in nutrition. Dr. George Eversaul, D.D.S., also uses it in his practice of dentistry in Las Vegas. A composite acupressure/applied kinesiology system is also used by many nurses and physical therapists.

In the field of sports medicine, the applied kinesiology system first developed by Dr. George Goodheart, D.C., of Detroit, has been America's secret weapon. Dr. Leroy Perry, D.C., specializes in sports medicine and has been written up in Sports Illustrated for his work.[10] Among his clients at the Summer Games of '76 were Bruce Jenner, Dwight Stones and just about the entire American track and field team.[11] Dr. John Thie, D.C., uses the system extensively in his chiropractic practice. He has put together an educational workbook for the system called Touch for Health. He also teaches "Structural Injury Prevention and Rehabilitation" in the Sports Medicine Program at Pepperdine University.

Among lay practitioners, Nancy Joeckel has pioneered the use of applied kinesiology as a tool for stress reduction. She uses it in her seminars and workshops, and presently holds a stress reduction contract from the army at Ford Ord, California. Many people have also combined some of the right-left brain research of Dolman and Delacato, and integrated a series of cross lateral and homolateral exercises designed to balance the body. In my work, I have used such an exercise approach with children suffering both learning disabilities and emotional disturbance, especially in the public school system of Richmond, Virginia. Nancy Joeckel, a former dancer, has integrated cross lateral exercise with muscle tests related to specific

meridians. Both she and I and others are working on a "kinetic yoga" of cross lateral muscle "dances" designed to balance the muscles and the meridians.

Larry Short, a gifted and innovative practitioner, uses the muscle tests and the applied kinesiology system as a prime feature of his personal transformation work, the Total Person Facilitation workshops. Short uses the tests especially to test the experience of the body as it responds to the transformative power of returning to the primal splits in the space/time continuum. His work, greatly influenced by the Spectrum of Consciousness by Ken Wilbur, uses this kinetic technique as its main tool.

The Kinetic Education Program at John F. Kennedy University stresses awareness training and the other tools of kinetic education, giving it a basis of experience from which to explore and integrate disciplines from the east and the west. Western muscle tests, zone therapy, reflexology and trigger points are combined with oriental meridians, acupressure points, and yogas. Tibetan and Indian yoga, Chinese and Japanese martial arts, and Burmese healing meditations are also combined with western stress reduction work and movement therapy from Feldenkrais, Alexander and Stuart Heller. The result, as my colleagues Nancy Joeckel, Larry Short, Jim Feil, and Stuart Heller can attest, is the beginning of a cross cultural system of internal yoga and awareness training.

Awareness and internal yoga: the central features.

Awareness and internal yoga are the central features of all these systems -- east and west. The modern western scientist can measure and describe a universe similar to the one experienced by ancient cultures. Yet

for all our mechanical tools we have not been able to experience this sort of world. The eastern mystics, with their awareness training and internal yoga, could, and their descriptions come from their experience. Now with kinetic education training we can directly experience as well as observe and test. Kinetic education is used as a basis for my classes in Acupressure at College of Marin, Stress Reduction at College of San Mateo, and Tools for the Intuitive Manager at John F. Kennedy's School of Business Management. Through the filter and approach of western muscle tests and observation, we can actually experience, no matter what our profession or bias, that interlocking mosaic of reality we find in both the classical cultures and modern physics.

Conclusion.

The applied kinesiology system has many uses and practitioners. But applied kinesiology has one special feature. Although in its advanced form it requires skilled practitioners, in its simple form it can be taught to and learned by almost anyone. Here we Americans already have the rudiments of our own versatile and flexible barefoot-doctor approach to preventive health care. We have a potential basis for an open ended beginning for a national self help health care program emphasizing an integrated, encompassing, open ended approach to fitness.

As Thomas Cureton, a graduate of Yale in electrical engineering, and generally recognized as the "father of American physical fitness," puts it:

> I deliberately conceived what I was doing. It was not by accident at all. It was by absolute thought and direct planning that I decided to spend my life investigating the connection between exercise and health, and especially the maintenance of adult health.[12]

The 80-year-old Cureton, Professor Emeritus of physical education at the University of Illinois, has harsh words for the medical profession, contending that heart disease could be almost completely wiped out if people began strict physical regimens during childhood and ate properly.

> I want to tell you that the medical profession has been deaf, dumb and blind to the needs of people in terms of physical fitness for many, many, many years. We could almost wipe out many of the chronic degenerative diseases off the map if people would dedicate themselves to a fitness program throughout life. If you could get everyone on a training program in this country, it would wipe out billions and billions of dollars of medical bills.[13]

Cureton points the way for one of the most pressing needs for our people. Combining Cureton's perspective with that of John Dewey, we perceive the great need in this country for a nationwide program encourageing lifetime training in psycho-physical awareness, health, and fitness.

In kinetic education, we have provided not only a philosophical perspective, but also a practical experiential model of awareness training, simple, clear and universal. And from the clinical complexity of systems like applied kinesiology, we have extracted a basic classical program of psycho-physical pressure points, psycho-physical exercise, and what could euphemistically be called American "near-meditation." If we could put this simple program of kinetic education into action, it could provide a firm foundation for such a national program of psycho-physical awareness, health, fitness, and care. Such a program might lead to more calmness and clarity in ourselves and in our society, true fitness of the mind and body throughout all levels of our society, true health, mental, emotional and physical, for ourselves and for our society.

# CHAPTER XII

# JAPAN: THE HOLISTIC PARADIGM AND CLASSICAL/MODERN EXPERIENTIAL TRAINING

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## JAPAN: THE HOLISTIC PARADIGM AND CLASSICAL/MODERN EXPERIENTIAL TRAINING

In the previous chapters we have covered some of the areas of concern from both an historical and a contemporary perspective. Obviously we need to do something in this country. But where do we turn for large scale national models? We have found on our shores the flowering of a number of useful disciplines such as yoga, t'ai chi, polarity, acupressure, and applied kinesiology. All of these methods of movement, meditation, medicine and martial arts are based on the concept of the "energy body" and the "energy anatomy" of man. We have posited the merging of two models of modern physics, bootstrap and holographic, to describe this body as a multi-tiered, multi-dimensional, non-linear interpenetrating, interlocking mosaic of incorporated models. Through the perspective of each incorporated model one can holographically perceive, if dimly, some of the interrelationships of the greater model. We have even chosen one common, mechanistic Newtonian model, the muscles and their tests, through which to view some of the other models. What we need now are some large scale national policy models which offer comprehensive and successful application of these practices and principles. We have looked at China and its national health policy. But America, although it has much to learn from China's experience, is quite unlike China.

### Eastern nation with a western front.

There is one country we can turn to, though. A modern industrial,

economic and corporate power, an eastern nation with a western front -- Japan. Japan is a country both classical and modern, and its emerging structures and institutions reflect a unique blend of both east and west, forged and tempered by those special qualities that are distinctly Japanese. Japan is essentially a classical, traditional, eastern, modern, technological, industrialized, highly scientific nation with some western infrastructure and veneer. Quite a mouthful, and quite a paradox. Or is it? Perhaps Japan's classical culture has allowed it to make a surprising leap directly into the worlds of electronics, computers, and modern physics. Certainly the Japanese have born the brunt of the destructive power of nuclear science. Ironically, Hiroshima and Nagasaki may have given the Japanese the impetus to vault beyond the destructive, mechanistic, reductionist applications of the power of modern physics.

Holistic Perspective.

For instance, the Japanese have taken the western developments of the corporation and the assembly line, and then run them on principles different from those found in the west. In an exhaustive examination of Japanese corporate organization and policy, Ezra Vogel's Japan as Number One shows how we won the war but are losing the economic struggle to a people with an unusual confluence of qualities.

The Japanese stress cooperation between labor, management and government. The Japanese company is as loyal to its workers as its workers are to the corporation. The government, in turn, creates policies designed to foster and bolster this sense of national cooperation. This disciplined cooperation leads to carefully planned and executed approaches to business

based on clear awareness of long term strategies designed to create stable markets for continuing growth and profit. The cooperative nature of the endeavor, from government policy to banking to management to labor, contrasts sharply with our own traditional adversarial conflicts between labor, management and government and our short term strategies which frequently result in temporary profit and unstable markets.

American business publications attribute Japanese success, in particular, to their middle management, superior in personnel, policy and training, and employing such strategies as participative decision making and quality control circles. Management philosophy includes a committment to workers for life. Indeed, Japanese workers are called "associates," and considered an integral aspect of the entire corporate body itself. In any crunch, the last thing a Japanese company will do is lay off or fire their associates. In America, lay offs and firings are often the first line of solution. Japanese policies include psycho-physical exercises designed to promote health and fitness and reduce stress for all interconnected members of the corporate body.

A specific example of popular usage of these principles may be seen in action in the policies of Matsushita, Japan's second largest electrical company with 1980 sales of 13.7 billion dollars.[1] Associates are sent for three day meditation retreats at zen Buddhists temples.[2] The initial week of training for new management pesonnel is also a zen retreat. In addition, before each shift on the floor, all employees in their plants, associates and managers alike, begin with rubbing their own pressure points for balancing the muscles and meridians, then proceed to perform various psycho-physical

exercises culled from some of Japan's own unique traditions. The pressure points and the psycho-physical exercises are followed by a brief period of basic meditation. Each shift has break periods every few hours in which aspects of this process are repeated. Could such simple acts have such a powerful effect on perception and performance? If not, why would so competitive a company as Matsushita make these moments of exercise, balance and clarity "de rigeur" for all its employees, management and associates alike? And why would all other major and minor Japanese firms, from Sony and Nissan Motors (Datsun) to individual department stores, have similar daily programs?

When Japanese companies take over or establish plants in America, we find an understandable gulf of ignorance and confusion regarding their programs for psycho-physical cultivation. When Sony took over a failing American plant, its first change was to replace a number of middle managers with Japanese or Japanese trained counterparts who then instituted Japanese policies of management. Within a year, with the same work force, the plant had achieved much higher levels of workmanship, productivity and efficiency. Yet when Time Magazine interviewed the leading Japanese officer about the plant's success, he stressed his mystification and disappointment that Americans would not do the "exercises" which he felt would be a great help in their work.[3] Likewise the Wall Street Journal interviewed the ranking Japanese officer of the new Nissan Motors truck plant in Tennessee. This head of quality control spent much of the interview expressing his distress that American workers would not do these essential exercises.[4] Both Time and the Wall Street Journal,

although expressing some amazement at this interest in exercise, failed to ask follow-up questions and tried to move on to what they considered to be important policies. The American publications ignored the foundations underlying the creative solutions to human and environmental relationships found in Japanese management policy: experiential practices designed to foster health, fitness and well-being in a world viewed as whole.

Direct transition.

Thus westerners have failed to explore the experiential practices and paradigms which have shaped the policies and organizations responsible for Japanese entreprenurial success. The classical Japanese heritage, which includes martial arts and meditation, and incorporates highly successful programs for psycho-physical awareness, health, fitness and care, has allowed them to make a direct jump to our web world. Perhaps it is less a jump than a direct transition made possible by a heritage that stresses the importance of direct experience. From such a foundation, Japanese management and associates alike can directly experience within themselves this classical/modern point of view. The individual, sometimes distinctly Japanese solutions may be merely manifestations of this deeper, more comprehending classical/modern attitude. At the core of this paradigm is a natural Japanese acceptance of the reality of the body/mind continuum.

Training: Japan's secret weapon.

Japan's secret weapon is an important aspect of this approach -- rigorous training, mental, physical, emotional, and spiritual. One example of the many traditions of training is kendo, the ancient Japanese art of

swordfighting. Many business and government leaders in Japan, including the present prime minister, Zenko Suzuki, practice the rigorous training of kendo. Yet the art entails much more than we imagine, for it is far beyond "Japanese boxing with long knives." The training imparts and strengthens a basic sense of awareness, clarity, and balance in a world of swirling energies. In some sense, it may impart a disciplined experience of the world as described by modern physicists. The constant experience first of the sword as an extension of oneself, then of oneself and the sword as a swirl of constantly shifting energies and relations, may give its masters an ability to dance with confidence, clarity and effectiveness both personally and professionally.

Kendo training is always paired with zen-like awareness meditation to enhance centeredness and balance in a constantly changing universe. Such training also incorporates some form of energy medicine, some form of manipulation, acupressure and physical medicine from a variety of Japanese traditions, including tsubo, shiatsu, jin shin, and do-in. Japanese culture is permeated with different approaches to psycho-physical training. Could such a combination be giving the Japanese advantages made visible in the economic realm? Clarity, confidence, flexibility, balance, awareness, heightened perception, centered calmness, direct experience of the nature of web world as well as our "quarky" universe -- training which enhances these qualities might well give a culture as well as a businessman or an executive some advantage in these times.

A Book of Five Rings.

Ironically, a classical kendo training manual, A Book of Five Rings,[5] has become something of an underground best seller in the American business community as our corporations begin to investigate the causes underlying Japanese entreprenurial success. The present American approach to this investigation, emphasizing the techniques and strategies of Japanese management, underlines our own weaknesses of perspective. By stressing technique and strategy which we can adopt and imitate, we ignore the most vital elements. Classical/modern Japanese culture, with its superbly competitive businesses, its efficient and humane organization, and its superior approach to management and training, springs from a view of the universe as whole and flowers through practices and training which can lead to direct experience of this inclusive holistic reality.

The recent profusion of books and articles on Japanese success, including Japan as Number One and Theory Z: How American Business Can Meet the Japanese Challenge, although informative and useful, fail to perceive the holistic paradigms and the discipline of direct experience from which Japan's successful practices of management grow. The Art of Japanese Management, though identifying Matsushita Electronic's use of zen meditation as an essential element of training, fails to examine in depth the Japanese assumptions about people, practices and policies of management. This unperceptive American approach can be clearly seen in an article in Adweek magazine written by George Lois, one of Manhattan's best-known advertising executives. Lois' article is directly responsible for A Book of Five Rings' underground popularity on Wall Street. Lois states:

> "The Japanese entrepreneur is not nurtured at an Asian equivalent of the Harvard Business School. Instead, he studies, lives and works according to an almost mythic tome written in 1645 by the great Samurai, Miyamoto Musashi. Musashi was Japan's most renowned warrior. By age 30 he had fought and won over 60 duels by killing his opponents. The invincible Musashi eventually retired to a cave to record for future generations the lessons of his intense life. There he completed, a few weeks before his own death, the classic, A Book of Five Rings. He wrote it not only as a thesis on battle strategy, but 'for any situation where plans and tactics are used'. Not surprisingly, business executives of 20th century Japan revere Musashi's philosophy as a guide for their daily decisions. And they therefore view the running of a business like a military operation.
>
> "I have some advice for American business men who are trying to figure out why the Japanese are kicking our duffs. Buy and study a copy of Musashi's A Book of Five Rings."[6]

Lois discovered the book on a visit to Japan about ten years ago. He states:

> "A ballplayer by the name of Kaneda told me about it. He's the greatest pitcher in the history of Japanese baseball and he said it was his bible. He said that all the Japanese businessmen and industrialists believed in it and studies it for strategy. I read it and fell in love with it because it's so wacky and wonderful."[7]

Lois has an advertising executive's clever awareness of just how to sell to his American audience. His brief comments conjure up those all-American images of sports, baseball, star pitchers, the military, running business like a military operation, the new and exciting toy (techniques, strategies) which can lead to success if enthusiastically applied, and above all the solitary hero, the Japanese equivalent of the western gunslinger, who never loses a fight. Luckily for us, the hero wrote down the reasons for his success, and we can now turn to his "how to" book and study it for our own success in sports, war and business. Although Lois gives no indication that he knows how the book is actually used, he does suggest that we look in the

direction of classic psycho-physical training for relevant help in our own situation.

Although studying A Book of Five Rings could be quite useful, using it as a primer for strategies of success would be the impatient American equivalent of giving a man from a country where no automobiles exist a book on how to drive a car. Musashi's A Book of Five Rings, or Go Rin No Sho in Japanese, is essentially an owner's manual for psycho-physical training of the body/mind continuum, a driving manual for kendo training, and a classic guide to "strategy". Indeed, the word strategy is a one dimensional translation of the Japanese "heiko", among whose multiple meanings are demeanor, attitude, outlook, stance in life, and approach to what is. Strategy is one's experiential demeanor and outlook on the whole of life.

Musashi is an actual historical figure, who was an accomplished artist, calligrapher, wood carver, brush painter, writer, meditator, warrior, and swordsman. He was highly trained, spending three years in a rigorous meditation retreat under the direction of a zen priest. From this base of meditation he expanded his highly disciplined psycho-physical training, adhering vigorously to kendo, the spiritual way of the sword. Musashi was born in 1584 to the samurai or warrior class. Having no practical function in that era of unexpected peace, he became a "ronin", a roving man. He and his fellow samurai lived to fight and fought to learn the way of the sword, the way of the warrior, and ultimately The Way itself.

Musashi is also a national hero in Japan. He is the subject of Musashi by Eiji Yoshikawa, a novel called by former U.S. Ambassador to Japan Edwin

O. Reischauer the Gone With the Wind of Japan and by Asian martial arts expert Robert Smith "Japan's answer to James Calvell's Shogun."[8] Musashi was first published as a serial in 1935-1939 in Asahi Shimbun, Japan's leading newspaper. It has been published 14 times in book form to the tune of 120 million copies and produced as a film seven times, including Kurosawa's classic Seven Samurai, which is based on a chapter in the book. Thus Musashi is rather well known in Japan. According to Robert Smith, Musashi is no longer regarded as the superman portrayed in film and fiction, and is now considered to be an expert swordsman who was on The Way. Smith's own review of Musashi by Yashikawa contains a most perceptive passage.

> "The style can be savored in the apocryphal story of the 16th century general, Takeda Shingen, who, armed only with an iron fan, is attacked in his tent by an enemy general who shouts 'What do you say now?' Takeda, deflecting the sword with his fan, responds, 'A snowflake on a blazing stove'.
>
> "Explication of such training would have helped the story. We know that the training made Musashi less bellicose ('the superior warrior does not fight') and more allied to nature (he fights Kojiro with a wooden oar he fashions into a makeshift sword on the boat en route to the contest ground), but in their fight, Musashi purposely arrives late and uses the sun and terrain to an advantage that would be disdained by spiritual swordsmen. Which means only that he was still in the process of change.
>
> "The book ends with Musashi triumphant over Kojiro but still evolving as a spiritual swordsman not yet 30. His development as an artist and writer lies ahead of him. Thus Yoshikawa's epic covers only change and not transformation."[9]

A Book of Five Rings was written some thirty years later, when Musashi was 60, and is not only a book of change but also a book of training and transformation. The book is organized into five chapters -- or more clearly attitudes, approaches, ways or rings. The five rings are ground, water, fire, wind and void. Musashi presents his work through the classic

form of the five elements. However, he does not use the earthly five elements of practical relationships one finds in Chinese theory, but the heavenly five elements of enlightened space one finds in the Buddhist countries of Tibet, Burma and Japan.

The Japanese language uses multiple meanings implied by subtle plays on words. The "Go Dai" are the "Five Greats" of Buddhism, the five elements which make up the cosmos: ground, water, fire, wind, void. The "Go Rin" are the "Five Rings" of Buddhism, the five parts of the human body: head, left and right elbows, and left and right knees. So in the fashion of the Japanese language, the title itself, Go Rin No Sho, has multiple meanings. For instance, the Japanese character for "wind" also means "style" and "tradition". The term void means nothingness, a state which is not a thing, the Buddhist belief in the illusory and temporary nature of worldly things. Ironically, given our western view of meditation as otherworldly passivity, zen Buddhism was the primary religion of the warrior class and the meditational impetus to the realization of the bushido, the way of the warrior.

The book is a guide to classical approaches to realization through intensive training in the Way of the Sword. The rings flow directly out of a view of the universe as whole and proceeds from the assumption that the student is involved with intense training designed to strengthen the entire psycho-physical body, and to prepare oneself for direct experience of the void. The practical principles of psycho-physical training, leading to an experience of internal and external wholeness, can be directly applied to whatever way we choose, be it the ways of business, education,

management, war, government, poetry, painting, service, art or profit. Through such training, one can actualize in one's body/mind continuum that centered stance, that clear point of view that perceives the wholeness of the chaotic, swirling energies of life, and thus one can act naturally and with effortless effort, in harmony with that energy. Winning is an outgrowth of rigorous training and the wisdom of harmonious understanding and disciplined application.

The classical holistic paradigms and practices, Japan's experiential cultural fabric devoted to the Way of the Void, are ignored by our rational mind set. (Due to the present difficulty in obtaining the volume, I shall quote from it at length). Musashi's manual for training and transformation begins:

> "When I reached thirty I looked back on my past. The previous victories were not due to my having mastered strategy. Perhaps it was natural ability, or the order of heaven, or that other schools' strategy was inferior. After that I studied morning and evening searching for the principle, and came to realize the way of strategy when I was fifty.
>
> "Since then I have lived without following any particular Way. Thus, with the virtue of strategy (heiko) I practice many arts and abilities -- all things with no teacher. To write this book I did not use the law of Buddha or the teachings of Confucius, neither old war chronicles nor books on martial tactics. I take up my brush to explain the true spirit ("shin" or "kokoro" has been translated as "heart", "mind", "soul", or "spirit", and can imply feeling, perception and manner) of this Ichi school as it is mirrored in the Way of heaven."[10]

Musashi's final words in the "Ring of the Void" were:

> "Then you will come to think of things in a wide sense, and taking the Void as the Way, you will see the Way as Void."[11]

A Book of Five Rings is a practical, holistic perception of the universe through the five elements of enlightened space, as well as a manual for

training and transformation. Musashi himself outlines his book in the following manner:

> "The Way is shown as five books concerning different aspects. These are Ground, Water, Fire, Tradition (Wind), and Void.
>
> The body of the Way of strategy from the viewpoint of my Ichi school is explained in the Ground book. It is difficult to realise the true Way just through sword-fencing. Know the smallest things and the biggest things, the shallowest things and the deepest things. As if it were a straight road mapped out on the ground, the first book is called the Ground book.
>
> Second is the Water book. With water as the basis, the spirit becomes like water. Water adopts the shape of its receptacle, it is sometimes a trickle and sometimes a wild sea. Water has a clear blue colour. By their clarity, things of Ichi school are shown in this book.
>
> If you master the principles of sword-fencing, when you freely beat one man, you beat any man in the world. The spirit of defeating a man is the same for ten million men. The strategist makes small things into big things, like building a great Buddha from a one foot model. I cannot write in detail how this is done. The principle of strategy is having one thing, to know ten thousand things.
>
> Third is the Fire book. This book is about fighting. The spirit of fire is fierce, whether the fire be small or big; and so it is with battles. The Way of battles is the same for man to man fights and for ten thousand a side battles. You must appreciate that spirit can become big or small. What is big is easy to perceive, what is small is difficult to perceive. In short, it is difficult for large numbers of men to change position, so their movements can be easily predicted. An individual can easily change his mind, so his movements are difficult to predict. You must appreciate this. The essence of this book is that you must train day and night in order to make quick decisions. In strategy it is necessary to treat training as a part of normal life with your spirit unchanging. Thus combat in battle is described in the Fire book.
>
> Fourthly the Wind book. This book is not concerned with my Ichi school but with other schools of strategy. By Wind I mean old traditions, present-day traditions, and family traditions of strategy. Thus I clearly explain the strategies of the world. This is tradition. It is difficult to know yourself if you do not know others. To all Ways there are side-tracks. If you study a Way daily, and your spirit diverges, you may think

> you are obeying a good Way but objectively it is not the true Way. If you are following the true Way and diverge a little, this will later become a large divergence. You must realise this. Other strategies have come to be thought of as mere sword-fencing, and it is not unreasonable that this should be so. The benefit of my strategy, although it includes sword-fencing, lies in a separate principle.
>
> Fifthly, the book of the Void. By Void I mean that which has no beginning and no end. Attaining this principle means not attaining the principle. The Way of strategy is the Way of nature. When you appreciate the power of nature, knowing the rhythm of any situation, you will be able to hit the enemy naturally and strike naturally. All this is the Way of the Void. I intend to show how to follow the true Way according to nature in the book of the Void."[12]

In the "Ground Book", Musashi declares:

> "There are various Ways. There is the Way of salvation by the law of the Buddha, the Way of Confusius governing the Way of learning, the Way of healing as a doctor, as a poet teaching the Way of Waka (the 31 syllable poem), tea, archery, and many arts and skills. Each man practices as he feels inclined.
>
> It is said the warrior's is the twofold Way of pen and sword, and he should have a taste for both Ways."[13]

In the concept of "bunbu itchi" or "pen and sword in accord" we find a clear statement of Japanese holism in contrast to "the pen is mightier than the sword" of western dualism. "Pen and sword in accord" is a key to training in the Way of the warrior.

> "For the warrior, a special perception is needed. Generally speaking, the Way of the warrior is resolute acceptance of death . . .. The warrior is different in that studying the Way of strategy is based on overcoming men."[14]

Musashi delineates the way of strategy of the warrior by using the analogy of the way of the carpenter.

> "Like a trooper, the carpenter sharpens his own tools. He carries his equipment in his tool box, and works under the direction of his foreman. He makes columns and girders with an axe, shapes floorboards and shelves with a plane, cuts fine openwork and carvings accurately, giving as excellent a finish

as his skill will allow. This is the craft of the carpenters. When the carpenter becomes skilled and understands measures he can become a foreman.

The carpenter's attainment is, having tools which will cut well, to make small shrines, writing shelves, tables, paper lanterns, chopping boards and pot-lids. These are the specialities of the carpenter. Things are similar for the trooper. You ought to think deeply about this.

The attainment of the carpenter is that his work is not warped, that the joints are not misaligned, and that the work is truly planed so that it meets well and is not merely finished in sections. This is essential.

If you want to learn this Way, deeply consider the things written in this book one at a time. You must do sufficient research."[15]

In the "Water Book", Musashi states:

"Language does not extend to explaining the Way in detail, but it can be grasped intuitively. Study this book; read a word then ponder on it. If you interpret the meaning loosely you will mistake the Way . . .

Strategy is different from other things in that if you mistake the Way even a little you will become bewildered and fall into bad ways.

If you merely read this book you will not reach the Way of strategy. Absorb the things written in this book. Do not just read, memorise or imitate, but so that you realise the principle from within your own heart study hard to absorb these things into your body."[16]

Realizing the principle from within one's own heart/mind evolves into absorbing the principle throughout one's body/mind continuum which can lead to the spiritual bearing of heiko.

"In strategy your spiritual bearing must not be any different from normal. Both in fighting and in everyday life you should be determined though calm. Meet the situation without tenseness yet not recklessly, your spirit settled yet unbiased. Even when your spirit is calm do not let your body relax, and when your body is relaxed do not let your spirit slacken. Do not let your spirit be influenced by your body, or your body be influenced by your spirit. Be neither insufficiently spirited nor

> over spirited. An elevated spirit is weak and a low spirit is weak. Do not let the enemy see your spirit.
>
> . . . . With your spirit open and unconstricted, look at things from a high point of view. You must cultivate your wisdom and spirit. Polish your wisdom: learn public justice, distinguish between good and evil, study the Ways of different arts one by one. When you cannot be deceived by men you will have realized the wisdom of strategy."[17]

In the "Fire Book", Musashi continues:

> ". . . You cannot assemble a thousand or ten thousand men for everyday training. But you can become a master of stategy by training alone with a sword, so that you can understand the enemy's strategems, his strength and resources, and come to appreciate how to apply strategy to beat ten thousand enemies.
>
> "Any man who wants to master the essence of my strategy must research diligently, training morning and evening. Thus can he polish his skill, become free from self, and realize extraordinary ability. He will come to possess miraculous power.
>
> This is the practical result of strategy."[18]

Here Musashi specifically lays out the three methods to forestall the enemy.

As the commentary states:

> "A great swordsman or other artist will have mastered the ability to forestall the enemy. The great swordsman is always "before" his environment. This does not mean speed. You cannot beat a good swordsman, because he subconsciously sees the origin of every real action. One can still see in Kendo practice wonderful old gentlement slowly hitting young champions on the head almost casually. It is the practiced ability to sum up a changing situation instantly."[19]

Musashi then lays our the three methods:

> "The first is to forestall him by attacking. This is called Ken No Sen (to set him up).
>
> Another method is to forestall him as he attacks. This is called Tai No Sen (to wait for the initiative).
>
> The other method is when you and the enemy attack together. This is called Tai Tai No Sen (to accompany him and forestall him).

> There are no methods of taking the lead other than these three. Because you can win quickly by taking the lead, it is one of the most important things in strategy. There are several things involved in taking the lead. You must make the best of the situation, see through the enemy's spirit so that you grasp his strategy and defeat him. It is impossible to write about this in detail.
>
> . . . In these three ways of forestalling, you must judge the situation. This does not mean that you always attack first; but if the enemy attacks first you can lead him around. In strategy, you have effectively won when you forestall the enemy, so you must train well to attain this."[20]

Here we can see three major principles of Japanese martial arts.

Musashi ends the "Fire Book" with this exortation, where he cryptically refers to the oral teachings passed down from teacher to student in the unbroken succession of a lineage over a long period of time.

> "When you have mastered the Way of strategy you can suddenly make your body like a rock, and ten thousand things cannot touch you. This is the body of a rock.
>
> You will not be moved. Oral tradition."[21]
>
> "This book is a spiritual guide for the man who wishes to learn the Way.
>
> My heart has been inclined to the Way of strategy from my youth onwards. I have devoted myself to training my hand, tempering my body, and attaining the many spiritual attitudes of sword fencing. If you attain and adhere to the wisdom of my strategy, you need never doubt that you will win."[22]

In the "Wind Book" Musashi begins by stating:

> "In my doctrine, I dislike preconceived, narrow spirit. You must study this well."[23]
>
> "There is no 'interior' nor 'surface' in strategy.
>
> The artistic accomplishments usually claim inner meaning and secret tradition, and 'interior' and 'gate', but in combat there is no such thing as fighting on the surface, or cutting with the interior. When I teach my Way, I first teach by training in techniques which are easy for the pupil to understand, a doctrine which is easy to understand. I gradually endeavour to

explain the deep principle, points which it is hardly possible to comprehend, according to the pupil's progress. In any event, because the way to understanding is through experience, I do not speak of 'interior' and 'gate'.

In this world, if you go into the mountains, and decide to go deeper and yet deeper, instead you will emerge at the gate. Whatever the Way, it has an interior, and it is sometimes a good thing to point out the gate. In strategy, we cannot say what is concealed and what is revealed.

Accordingly I dislike passing on my Way through written pledges and regulations. Perceiving the ability of my pupils, I teach the direct Way, remove the bad influence of other schools, and gradually introduce them to the true Way of the warrior.

The method of teaching my strategy is with a trustworthy spirit. You must train diligently. . . . There is no inner meaning in sword attitudes. You must simply keep your spirit true to realise the virtue of strategy."[24]

In the "Book of the Void," Musashi sums up his entire approach:

"The Ni To Ichi Way of strategy is recorded in this the Book of the Void.

What is called the spirit of the void is where there is nothing. It is not included in man's knowledge. Of course the void is nothingness. By knowing things that exist, you can know that which does not exist. That is the void.

People in this world look at things mistakenly, and think that what they do not understand must be the void. This is not the true void. It is bewilderment.

In the Way of Strategy, also, those who study as warriors think that whatever they cannot understand in their craft is the void. This is not the true void.

To attain the Way of Strategy as a warrior you must study fully other martial arts and not deviate even a little from the Way of the warrior. With your spirit settled, accumulate practice day by day, and hour by hour. Polish the twofold spirit, heart and mind, and sharpen the twofold gaze, perception and sight. When your spirit is not in the least clouded, when the clouds of bewilderment clear away, there is the true void.

Until you realise the true Way, whether in Buddhism or in common sense, you may think that things are correct and in

> order. However, if we look at things objectively, from the viewpoint of laws of the world, we see various doctrines departing from the true Way. Know well this spirit, and with forthrightness as the foundation and the true spirit as the Way, enact strategy broadly, correctly and openly.
>
> Then you will come to think of things in a wide sense and, taking the void as the Way, you will see the Way as void.
>
> In the void is virtue, and no evil. Wisdom has existence, principle has existence, the Way has existence, spirit is nothingness."[25]

Thus Musashi's A Book of Five Rings, the classic guide to heiko for the bushido, the way of the warrior, takes its place alongside other great works of mystical realization, such as the Bhagavad Gita of India and the Tao Te Ching and the I Ching of China. Our western misconceptions of the nature of training, practice and experience in the way of mystical and spiritual realization force us to ignore its supremely practical values in the conduct of everyday life. The successful approaches of Mao and the communists in driving the nationalists from China, and of Ho Chi Minh and Gen. Giap in driving the Japanese, French and Americans from Vietnam were drawn directly from the Tao Te Ching, the I Ching, and a Chinese marital equivalent of A Book of Five Rings called The Art of War by Sun Tzu. Kendo training with its perspective and practices outlined in A Book of Five Rings, with its strong reliance on the clear awareness gained from meditation in sitting and meditation in moving, would be excellent training for any executive in business, education or government.

For that matter, training in any number of approaches to martial, medical or meditational arts would be extremely useful for managers and associates alike. This tempering of the body/mind continuum through psycho-physical practice already constitutes, in George Lois' eyes, the

Japanese equivalent of our M.B.A. training. In simple terms, we need to incorporate similar training into our own programs for business administration and management, especially in leadership levels in our corporate, educational, medical and governmental realms.

Only through this approach of intensive training can we go beyond our limited rational assumptions about people, practice and policy which lie at the heart of the present problems of American management in government, education and business. Without such training we run the risk of misunderstanding, narrow mindedness and unintelligent action that has marked our recent history. Our executives and brokers may even misunderstand those clear words of Musashi who said, "You must utterly cut down the enemy so that he does not recover his position."[26] Robert Allio, Dean of the School of Management at Rensselear Polytechnic Institute states: "The message is clear. Business needs to be approached as though one were a warrior."[27] We need to be careful not to misunderstand the spiritual way of the warrior and the spiritual way of business and take the unintelligent action of grafting Musashi's skillful directives onto our present narrow minded rational assumptions. Such an approach could indeed set us up to be "slashed swiftly and without warning." Instead, we need to develop wisdom and understanding which can lead to skillful application of expanded assumptions about the nature of people, policy and the holistic nature of reality we find in the modern paradigms of physics and electronics. Such a conscious holistic approach can help us develop those new attitudes which in turn can lead to the evolution of successful approaches which will keep us competitive in this age of communication.

Tomio Sato, senior foreign correspondent for "Nihon Keizai Shimbun," the "Japan Economic Journal," sees A Book of Five Rings' recent popularity on Wall Street as a classic case of American zeal and enthusiasm over finding a new toy. He stated that Japanese businessmen themselves were far too concerned with the future to be rummaging around in their past. Sato continued: "Remember Japan did, after all, import your technique of the assembly line. Although we did improve upon it."[28] Perhaps Sato is merely practicing the strategic advice of Musashi who said, "Never let the enemy see your spirit." At best, Sato is disingenuous, for how the Japanese improved on the assembly line and other western innovations comes directly out of the cultural paradigms, their perceptions and practices, their classical training, their direct experience of the universe as whole, outlined in works like A Book of Five Rings. The Japanese could begin by importing techniques and letting these seeds grow and flower out of their rich cultural ground. We however must look to importing or creating the means for direct perception of the holistic nature of reality. From such a foundation, and from such training, we can again grow and compete in the technological world of interacting electronic and perceptual webs we helped to create.

The model for corporate organization.

As we have been suggesting, the same principles of organization and flow one finds in A Book of Five Rings can be found in the organizational structure, management policies, and communication flows one finds in Japanese companies. Training in the Chinese earthly five elements or the Buddhist heavenly five elements leads to the establishment of organizations whose very structure, content and activity reflect these principles.

Corporate policy not only encourages personal ecology and health but also corporate ecology and fitness. Thus the five elements' approach to organization and management, infused througout Japanese culture, is a key element in its entreprenurial success.

Considering life and work as a harmonious whole in the balance of nature leads to policies of management and organization which look to encourage the movements of this balanced harmony between individual associates, groups conducting specific tasks, departments, divisions, plants,and subsidiaries within a whole company. The same principles that govern nature also govern personal and professional life. A balanced harmony of interpersonal and interdepartmental relationships also takes into account the constant nature of change within each element, between elements, and thus within the larger system and all within it.

William Ouchi, author of Theory Z: How American Business Can Meet the Japanese Challenge, suggests the analogy of the interactions of a basketball team as a western metaphor for a newer, more competitive type of organization.

> "In a sense, a basketball team that plays well together fits this description. The problem facing a basketball team is huge in its complexity, and the speed with which problems occur is great.
>
> Yet an effective team solves these problems with no formal reporting relationships and a minimum of specialization of positions and tasks. Each person understands his task and its relationship to other tasks so well that the coordination is unspoken.
>
> On a less cooperative team, however, the players attempt to hog the ball, to take as many shots as possible and in these attempts frequently move out of their defensive positions.

> The coach responds to this human frailty by asserting the hierarchical right to monitor each player closely, forcing them to stick to their job descriptions, to demur to authority, and to carry out bureaucratically prescribed plays.
>
> Such a team can never perform with the same grace, the same satisfaction, nor the same productivity as can the one that operates on Z principles."[29]

Recognizing that productivity in Japan has increased at 400 percent the rate in the United States during the post war years, Ouchi feels that the key is what he calls Theory Z: that involved workers are the key to increased productivity and that the best known feature of Japanese organizational and management policy is their participative approach to decision making. In a typical American organizaton, the department head, division manager and president each feel that "the buck stops here" -- that they alone should take responsibility for making decisions. In a Japanese organization, when an important decision needs to be made, everyone who will feel its impact is involved in making that decision. Often 60-80 people will be involved in deciding whether to change something like a production process, with discussions followed up by a formal proposal, going all the way from bottom to top of the organization. For Ouchi, a perfectly integrated Z organization has no organizational chart, divisions, or visible structure.

Ouchi then describes how Theory Z was instituted at one of the worst run plants of a large American corporation. Theory Z's implementation meant leaving the present systems in place and building around them a new attitude, a new approach to management. The new plant manager who was implementing Theory Z found that the employees had been held in a state of ignorance, unaware of the competitive realities facing them. As usual in an American organization, employees did not understand the corporate

hierarchy, the accounting system that measured their performance, or the information system that regulated their stream of work. Since they were merely performing tasks, evaluating and improving their own performance was beyond them. They had no sense of being an integrated part of a larger system.

The new manager conducted training for his plant managers in participative decision making and cooperation. After explaining the relationship of the plant to the company, he encouraged the practice of interpersonal skills such as skepticism and openness which were designed to develop trust. Within a year of the new manager's arrival, the plant ran more efficiently than ever, with a lower rate of absenteeism and turnover and a higher rate of efficiency and quality. As Ouchi put it:

> "Theory Z worked in this plant because it assumed that a worker's life is a whole, not a Jekyll-Hyde personality, half-machine from 9 to 5 and half-human in the hours preceding and following.
>
> Theory Z suggests that humanized working conditions not only increase the company's productivity and profits but also increase the employees' self-esteem. An increased sense of ease make everyone function better as people.
>
> Up to now American managers have assumed that technology makes for increased productivity. What Theory Z calls for is a redirection of attention to human relations in the corporate world."[30]

In the previous example we see practical applications of the Japanese management principles of cooperation and participation as well as a common sense sports analogy, the fluid, spontaneous basketball team, as a model for a new attitude, a new approach to management which calls attention to human relations in the corporate world. We would further suggest that much of this holistic approach to management comes directly

out of a view of the universe, organizations, relations and ourselves found in the theories of the five elements and directly experienced through rigorous training. Thus the Japanese principles for corporate organizatin evolve from the disciplined internal experience of meditation and the martial arts.

How can we do it?

The Japanese experience raises poignant questions for Americans. Why don't we do something similar? How do we make the transition? How do we change? How specifically would we do it?

The model of kinetic education is my attempt to provide just such a simple, universal model, for all ages, sexes, schools, businesses, for all walks of life. Yet the model of kinetic education is uniquely designed for American needs, from an American perspective, with an American audience in mind. Kinetic education constitutes a potentially simple, do it yourself mass scale approach to fitness medicine and health maintenance.

With our own situation in mind, let us look further at a few key elements in the evolution of the Japanese mosaic that are especially relevant to us. The indigenous Japanese systems have undergone a history similar to the Chinese systems. With the advent of western medicine the traditional systems were relegated to the status of "unscientific" folk medicine. After World War II, we find a renewal of interest in the traditional approaches for they represented a cheap, direct way to attain and maintain health in many situations. With the advent of televison, there was a sudden boom. One very simple system, shiatsu, gained pre-eminence, for its originator Tokujiro Namikoshi went on television and in effect taught it to the Japanese nation. He became as much of a television celebrity in

Japan as Dr. Kildare did here. Since the system was simple and very Japanese, it gained immediate widespread acceptance.

From television to storefront clinics.

Television would be an excellent medium for kinetic education. A psycho-physical fitness television show might prepare the way for corporations to begin to avail themselves of such programs. In terms of increased productivity, lower absentee rates, more altertness, concentration and coordination, as well as lower health insurance rates and potentially higher profits,[31] such a program might be very well received. Like the Japanese, we too could use television to create knowledge and use of our own American system of preventive health care and psycho-physical fitness. More complex and deeply therapeutic systems such as the "physical medicine" of Lauren Berry, the naprapathy of Dr. Landon Rice or the applied kinesiology of Drs. Goodheart, Thie, Perry and Deal could then play an important role in the hands of experienced practitioners. Such a program would provide information for the individual to use on his own initiative, and would bypass the sort of problems we might face if we tried to place kinetic education in the schools. In addition it would pave the way for use in the schools themselves. The knowledge itself would provide the basis for anyone, rich or poor alike, to begin to work on themselves to improve their health. Eventually, there might even be storefront and neighborhood fitness clinics that would help people on all economic and social levels achieve maximum health and well-being. We also need to study carefully just what China and Japan have done in these areas of national policy, educational institutions, and corporations. Then we need to discuss strategies for

integrating kinetic education into our educational system. What we need then to increase the health, well being, alertness, concentration and productivity of Americans are our own "psycho-physical coffee breaks" as well as the deeper aspects of the experiential realization of the holistic paradigm offered through the practices of kinetic education.

Conclusion.

So we have the possibility of borrowing an eastern tradition, as both the Japanese and Chinese have done with such western traditions as rational medicine, Marxism, the assembly line and the corporation, and creating an American derivative. After studying the large scale models of Japanese psycho-physical training, including national policy, corporate programs and utilization of television, we too can embark on a similar task. However, our model, of necessity, must be adapted to American needs. Therefore we will use the model of kinetic education which emphasizes distinctly American derivatives of classical awareness training and psycho-physical meditation, exercises, movements, pressure points and internal martial arts. Kinetic education, with its open ended, simple, easy to do, easy to learn and easy to teach combination of eastern and western approaches, is the best place for us to start at presnt. Thus we can take Japan's modern mosaic answer and apply it to our own needs.

In addition, the kinetic education approach gives us a direct way to perceive and experience the dissipative holographic bootstrap nature of our world and of our own body/mind continuums. Through kinetic education, we can actually be that new paradigm of the body/mind continuum. For our heritage is not limited merely to the rational reductionism of the Newtonian

mind. Instead, we have the cultural and scientific heritage of the entire world to draw upon. This awareness itself, if we but acknowledge it and apply it, opens to us an incredibly rich and fertile ground. Here we can take seed and grow, as individuals and as a truly whole people on the face of the earth.

# CHAPTER XIII

## CONCLUSIONS: THE IMPLICATIONS OF PSYCHO-PHYSICAL CULTIVATION, THE BODY/MIND CONTINUUM AND THE HOLISTIC PARADIGM

# CHAPTER XIII

## CONCLUSIONS: THE IMPLICATIONS OF PSYCHO-PHYSICAL CULTIVATION, THE BODY/MIND CONTINUUM AND THE HOLISTIC PARADIGM

We live in a period of particularly intense scientific, technological, cultural and philosophical transition, a period abundant with cross-cultural and cross-disciplinary contact, connection, and fertilizaton. Under these circumstances, the cultural assumptions of western society, as well as its social institutions, face widespread questioning, direct and indirect challenges, and outright moments of turmoil and conflict. Our present period of transition is thus a time of marked crisis in the entire fabric of western culture, from its politics, economics, and education, to its scientific and intellectual underpinnings.

This dissertation has examined the cultural, intellectual and scientific context of our present dilemma, emphasizing especially the influence of the "rational" perspective. Rooted in a tradition of thought developed by such individuals as Descartes and Newton, rationalism is the intellectual heart of the dominant western paradigm of our times. Yet this rational paradigm, with its acompanying dualistic model of the universe, seems too narrow and rigid. Unable to provide satisfactory answers to pressing questions, rationalism also directs us towards the wrong questions. The rational paradigm's reductionist, mechanistic viewpoint, with its consequent influence on all our sciences and disciplines, requires major revision.

Such diverse phenomena as the women's movement, the increased interest in eastern religions and cultures, the holistic health and ecology

movements, and especially the fitness boom may be part of a grass roots challenge to this paradigm. Recent advances in physics go well beyond the rational perspective, undermining its scientific and intellectual assumptions to present us with an opportunity to develop a greatly expanded view of the universe and of ourselves. Indeed, our entire earth is now ringed with a new technology, the electronic webs of computers and telecommunications systems, that are creating their own electronic culture. Such new experiences, ideas, and technologies, as well as information unexplainable by conventional methods and systems of thought, demand expanded models which can help explain and explore emerging phenomena, rather than rigid and restricted models which deny and invalidate our actual experience. In response to these intellectual and cultural pressures, this dissertation has examined a variety of sources which may provide a basis for models which can help us view our present situation.

Parameters of the mosaic of the body/mind continuum.

This thesis has presented an open ended mosaic of interlocking models which comprise an emerging paradigm of the body/mind continuum. Each model has its own conclusions woven through it, and the parameters of each model "involve," interact and dance with one another. As we view the parameters of our continuum, we know that diverse cultures saw and described other parameters from different points of reference. Our experience of the dimensions of the body/mind continuum, our perception of who we are and what our possibilities are, our understanding of the processes of education and integration, emerge in the vastness and open-endedness of this dynamic mosaic. This overwhelming diversity appears as a

shifting, constantly changing dynamic web of relations and interactions. However, we can start simply with our body, using that body as the very point of reference from which to experience directly the interlocking body/mind continuum, the realities described in the clearly defined psycho-physical maps of the classical cultures, and the nature of the new paradigm we find emerging from modern physics and from the electronic technology of computers and telecommunications systems. Our expanded perspective on physical cultivation gives us the opportunity not only to experience this greater reality but also to enhance our psycho-physical health and fitness, both individually and as a society.

Holistic theories of the new physics.

As we can clearly see, the theories emerging from the new physics have vast implications for how we view the world, and thus for how we act and learn within the world. The quantum theory realizes the essential interconnectedness of nature. The relativity theory recognizes the intrinsically dynamic nature of the cosmic web, with its very activity the essence of its being. The bootstrap theory presents a mosaic awareness of an interconnected web of relations in which particles are dynamically composed of one another, with no fundamental entities, but with all aspects as necessary consequences of the self-consistent cosmic web. The uncertainty principle acknowledges that the observer is part of the experiment, and the perspective of the observer is one of the major determinants of the outcome of the experiment. The holographic theory views all apparent substance and movement as illusory, dynamic, and kaleidoscopic, in reality unfolding from another more primary, implicate,

and enfolded order of the universe, with the potential for perceiving the whole of nature, in diminished resolution, from the perspective of any one point of reference on the matrix of reality itself. The theory of dissipative structures perceives that fluctuations or perturbations trigger changes in unstable, self-organizing systems, including human beings, which enable the systems to escape from old patterns into new order and coherence. Bell's theorem demonstrates that when certain particles have interacted and then flown off in opposite directions, interference with one particle will instantly affect the other particle, regardless of the distance between them, thus expressing the quantum interconnectedness of distant systems, and ultimately of the entire universe and all within it. Thus modern physics shows us a universe of unbroken wholeness and implies that through direct experience and awareness we can perceive, from the point of reference of our own body/mind continuum, the reality of this inclusive universe. This view of the universe is similar to the perceptions and experiences of mystics of all ages, cultures and religions.

Beyond rational absolutes.

This universe of unbroken wholeness denies the absolute applications of the conventional, rational method, which tries through analysis to reduce the world into separate and independently existing parts. The theories of modern physics undermine some of the cherished assumptions of western man, including our present way of viewing the world and our present method of education. Such dogmatic assertions of the cult of rationality as the theory of progress, the rational method, evangelical scientism, messianic reductionism, racial superiority, cultural chauvinism, and the

intolerance and fanaticism of some aspects of western religion and science, all recede into the mists before the vast world view of the new physics. The implications for education are far-reaching, for eduation must prepare us to live, love, work and act in the world we now see through the eyes of the new physics.

The philosophical basis of the cult of rationality has been challenged by the very disciplines and method which gave us its original assumptions. It is not that the rug has been pulled out from under us. Instead, the cultural rug is still in place. We have discovered that the rug, which our approach posited was the whole "truth," is resting on a floor, in a room, in a house of many rooms and floors, itself resting on the earth next to other types of houses with other rooms and rugs. The earth itself is just a speck of dust, floating with other specks of dust in an unimaginable vast expanse. These specks, on whatever level, are not solid matter, but interconnected webs of dynamically active relations, bundles of energy involving and interacting with other bundles of energy. Old and new cultures are interconnected today by an electronic web, an extension of McLuhan's concept of a global village, that gives even young children in our culture an unspoken experience of universal interdependence from birth through the whole process of growing up. We can thus begin to heal our own personal and cultural split between the body and the mind that we find presented in the dogma of the cult of rationality. One of the major problems with "rational" western education is its promotion of the experienced split between body and mind. Yet as we have seen, modern physics would view the body as a body/mind continuum, its essence being emptiness, rhythm and internal dance. We can

use our experience of this view of the human body to learn for ourselves the reality of the modern theories of the universe. In simple terms, we can teach the experience of physics and the experience of the electronic web world through the experience of a physical education based on an expanded attitude towards the reality of the body/mind continuum.

Pluralism: beyond prejudice and provincialism.

Although our prejudice and provincialism may yet be our undoing, we do have some strengths. As a very new country we lack the advantages of a classical cultural tradition. However, our very pluralism, with its own practical tradition of tolerance, acceptance and realism allows us to draw on the tradition of other cultures. Indeed, significant groups of our citizenry come from such cultures, and even maintain intact a degree of that classical parent culture.

If we start with respect for the information, understanding, knowledge, experience and wisdom of the other peoples and cultures, we can learn from them and they can learn from us. Lacking the strength of one classical perspective, we can draw on our tolerant and open-ended pluralistic tradition and incorporate multiple perspectives from classical cultures, modern physics and electronic technology. We have the possibility to form a broader, inclusive mosaic point of reference from which to perceive and experience the nature of reality itself. Going beyond our provincial, 19th century preconceptions and prejudices, we can increase the possibilities for clear awareness of our present situation, honest examination of our weaknesses, intelligent considerations of options provided by ourselves and others, especially other cultures, plain hard-headed realism to

propose workable solutions to our difficulties, the will and practical bent to apply them and to understand how they work or fail, the flexibility to adapt as we go, and the internal strength to see it through. The very qualities that could lead in this direction can be gained from the internal and external practice of the disciplines of psycho-physical cultivation. We could only gain both individually and as a society from a large scale application of the internal discipline of psycho-physical cultivation.

The pursuit of understanding itself grows out of an awareness of ourselves and the universe as essentially whole. This mosaic viewpoint, which denies no phenomena because it fails to fit some preconception, bias or ironclad method, gives us a powerful foundation of clear, honest awareness for exploring ourselves and our universe. This union of diverse methods, of reason and intuition, is in reality plain hard-headed common sense.

Electronic stone tablets.

Our open ended pursuit of understanding can lead us to use our computers and telecommunications systems to compile knowledge and wisdom from all over our world, our cultures and ourselves. We so easily forget that the foundations of western science came to us because a caliph had a belly ache, and some Christian mystics had kept alive a living tradition of Greek medicine as well as extensive copies of the major works of Greek and Hellenistic science. If we heed this example of Graeco-Hellenistic-Christian-Islamic-Arabic-European cross-cultural transmission, we will use our computers and telecommunication systems to record and synthesize knowledge from all over the world, from any time, place, culture

or perspective, before it is lost to us. We have the chance to create our own "electronic stone tablets" (similar to the tablets of the walkaways of the Thai monastery), our own electronic cross cultural libraries containing as much as we can find of the "wisdom of the ages." Such knowledge and wisdom could be open to all to use in the common sense pursuit of understanding.

Perhaps we can avoid great loses to humanity such as the destruction of the wisdom, experience and learning of the Native American civilizations of Peru, Mexico and North America. And we can use the abilities of our computers to extrapolate particular lessons that are valuable to us today. There are numerous examples we could draw upon. First, the agricultural flowering of our southwest is based on irrigation. It is not so well known that many of the original 1000 year old irrigation canals of the Hohakam and Annasazi cultures were re-dug by us. Perhaps our very idea for the irrigation canals, as well as their exact layout, came from these ancient cultures. If we studied them carefully, we might find out why agriculture in the southwest flourished for hundreds of years, then apparently failed rather suddenly. Second, with the increasing cost of energy, we are seeing a booming interest in the inexpensive utilization of more natural means of temperature control, such as air convection currents, passive solar design, and improved methods and materials for construction and insulation. What better place to look than those marvels of engineering and natural temperature control in the stone and adobe buildings of the ancient southwestern cultures, with their highly sophisticated use of convection currents, insulation and passive solar design.

Or we can turn to Peru, where the Incas constructed another engineering marvel, the royal road, a stone paved highway which twisted and climbed 5000 miles through the forbidding Andes Mountains. A British archeologist, Ann Kendall, has looked into the barren, powder dry land near Patallacta, between Cuzco and Machu Pichu, and found it once supported a large population with a flourishing agricultural base. Through extraordinary ingenuity, industriousness, and engineering skill, the Incas constructed numerous stone irrigation canals which snaked down from the glacier fed streams of the high Andes. This design diverted enough water to wet the carefully terraced plots without overflowing or bursting through the stonework. Following the first Spanish incursion, disease introduced from Europe ravaged the Incas. In one populous valley, 95% of the Incas were wiped out. Before they could regenerate themselves, the Spaniards returned, slew the remaining administrators and intelligentsia, destroyed as much of Inca culture as they could find, and enslaved the farmers to work in their gold mines. The canals died, and Peru is still a poor country, with food and potable water in short supply. With the encouragement of the Peruvian government, Kendall is rebuilding some of the canals "to convert information about the past to practical use in order to improve the economy . . . It's possile to make this land fertile and other land in similar circumstances -- using the same methods that the Incas used. . . Modern Peru has much to learn from the Incas, who had a deep sense of their dependence on their 'Mama-Pacha,' Mother Earth."[1] They managed it so well all over the empire that the conqueror Hernando de Soto was moved to say: "There was never hunger known in their realm."[2] Ironically, Europe,

especially its poorly nourished populations, gained much more from the greatly expanded food sources, including potatoes, tomatoes, corn, beans, and many fruits that came from the Americas than from the gold that was quickly squandered in useless and unsuccessful wars which impoverished Spain.

In ancient Mexico, when Cortez first entered the Valley of Mexico and viewed the Aztec capital Tenochitlan, he felt as if he were in a dream. Before him lay an architectural marvel, far surpassing anything that existed in Europe at that time. Tenochitlan, with at least five times the population of London and three times the population of Paris, was constructed on man-made floating islands in the center of a lake, with its own aqueducts and sewage systems, surrounded by other man-made floating islands on which its food was grown. In terms of beauty, architecture, design, and engineering, Tenochitlan far surpassed anything the Spaniards had seen in Europe, including Rome, Venice and Cordoba, the splended capital of Moorish Spain. Once again rampant plague, as well as a mass revolt of the other Indians governed by the Aztecs, was a major factor in the destruction of these magnificient civilizations. Our present knowledge of these great cultures is limited to the remaining ruins, for the Spaniards slew the learned and enslaved the rest, burning the extensive libraries of Texcoco and destroying all they could find of Indian high culture. If these Native American civilizations were so accomplished in agriculture and architecture, what else did they know? The Mayans were perhaps the first people in the world to invest the use of zero and use it as a basis of their "visual computer" mathematical system. The Incas and pre-Aztec inhabitants of Teotituacan

practiced brain surgery. From our examination of some of the skulls some doctors think they were more successful at brain surgery than we are today.

Medical Mosaic: beyond rational devastation and dominance.

We have seen the same sort of devastation dominate the field of medicine in America. In spite of its recent history, we can now explore how the much maligned field of American medicine could benefit from the experience of other cultures as well as our own computerized factor analysis. According to Mendelson, Illich and others, one problem with American medical education is the choice of students -- usually inexperienced and emotionally immature male youngsters who have done little in their lives except bury themselves in various science books, whose primary intellectual quality is an ability to memorize various formulas, and who are not tested for manual dexterity, so important in the case of surgeons. With such a background, we wonder why they don't become good or even competent doctors. What we could do with our computers and factor analysis is examine the medical traditions of a variety of cultures, such as India, China and Tibet, to see what qualities of character, education and experience are necessary for a good doctor. Such a profile could help guide us in our selections for medical school. Another major problem with our present medical education is the bootcamp approach, featuring four or five years of continuous exhaustion, induced stress and ill health, and constant intellectual propaganda which tends to lead to arrogance and authoritarian narow mindedness. Instead we could employ a common sense approach, examining the methods and principles of medical training in other cultures, and find ways to improve our present "system." If we wonder why

American medicine is now facing so many doubts, we can begin by examining the process of selection and the nature of the training itself.

Indeed, use of our computers and telecommunications systems could lead to a new cooperative approach to health, drawing on the different medical systems in the world, which could be of immense benefit to the health and fitness of all of us. For instance, we could create an electronic Barefoot Doctor's Manual, drawn from all the medical systems of the world. It could be progammed from a symptomatic western perspective, so that one could press a button for a certain disease or symptom and find a summary of all the different methods of treatment from different cultures. Then one could call up additional information about any desired approach, including relevant videotapes, much like the herbal murals on the walls of the ancient Mexican clinic, which would show exactly how to perform the course of treatment. The computer could also be programmed form a non-western, non-sympotmatic perspective as well. Therefore, we would have an electronic version of the Barefoot Doctor's Manual, the Mexican medical murals, and the stone tablets of statues of the Thai monastery, providing at our fingertips the relevant information from a variety of cross-cultural and corss-disciplinary backgrounds.

In the comfort of their homes, individuals could call up programs for psycho-physical health, including instructional video tapes on stretching, yoga, and internal martial arts. When faced with more important health problems, individuals could also call up the alternative modes of therapy open to them, and make their own choices as to which path, or combination of paths, to pursue. Thus we could employ technology to return to ourselves

our sense of responsibility for our health and fitness. In the United States we need a policy of cooperative health care, as well as free market competition among the various medical providers, such as allopaths, surgeons, homeopaths, naturopaths, chiropracters, osteopaths, and other practitioners of fitness, energy, herbal, corrective, manipulative, massage and oriental medicine. And we need to employ an apprenticeship system for training practitioners. Thus expanded parameters could lead to a fitter, healthier nation, with greater individual responsibility, improved selection and training of practitioners, and a vital banquet of diverse health services.

Education: the kinetic mosaic.

What is true for health care and medical education in this country is also true for education and our entire educational system. Again we can feed into our computerized telecommunications system information from the educational systems of various cultures, then extrapolate through our programs information and lessons relevant to our situation. We could start with the qualities necessary for successful educational systems, what types of curriculum are needed, what types of goods, what kind of teacher training, what qualities of mind, what kinds of curriculum and teachers have been effective in other cultural situations. With such a data base, and with an intelligent approach on our part, we might be able to take our considerations of the best approaches to our eduational system out of the realm of provincial 19th century prejudices and put them in the realm of a realistic, common sense drive for high quality, internal and external discipline, cultural continuity, relevance, and actual education.

How can we make our curriculum come alive, and involve ourselves in

the process of education, from the solid foundation of basic education to the experience of the nature of reality itself? Our expanded attitude, based on the paradigms of the new physics, the classical cultures and the world of electronic technology, grows out of the experience and understanding we gain through kinetic education. Kinetic education springs out of the roots of psycho-physical cultivation and classical and modern philosophy, grounding itself in a direct experience and understanding of the body/mind continuum itself. Our children themselves, when they are young and their learning rate is greatest, can learn for themselves, within their own systems, those very views of a world essentially whole we find in our expanded paradigm. Thus kinetic education can give them a solid basis of perception, experience and awareness, in effect how to think, from which the rich tree of basic education, language, science, mathematics, art, music, cultural history and psycho-physical cultivation can grow. Utilizing our tradition of pluralism, tolerance and acceptance in the educational system, and allying it with the solid discipline of basic education and the experience of kinetic education, we can apply these great cultural strengths to the solution of our current educational mess. In simple, competitive terms, if the Japanese can do it, so can we.

To bring this external curriculum alive, we must begin anew by examining and revamping our entire educational curriculum. In science and mathematics, we must go beyond our antiquated 19th century approach, and begin teaching the views of modern physics and higher mathematics to young children, encouraging them to experience within their own body/mind continuums the reality of this paradigm. From this basis of modern

awareness, we can take them on a journey where they learn and appreciate the history of science and its many methods and approaches.

Not only would we train them from an early age in computer literacy, and in the visual literacy of video, film and telecommuniations, we would also use these complementary modes as a basis for a strong training in traditional literacy. In effect, all these are essential parts of the larger goal -- a solid training in al the tools necessary for the literacy of communication. Here we can draw upon some of those excellent television shows such as James Burke's Connections, Carl Sagan's Cosmos, Voyager's explorations of Saturn and Jupiter, Inside the Body, that marvel of micro-photography. Such shows can be integrated into a new, vibrant science curriculum and used as a major tool of instruction for biology, chemistry, physics and higher mathematics, thus making modern science come alive for us and our children as a powerful example of external curriculum.

In history and geography as in science we can also go beyond the parched world of memorization and the foolish restrictions of the rational method. History could come alive for us as cultural history, a rich, deep mosaic of the cultures of the past and present, with an eye to their patterns of transmission, cross-fertilizaton and interconnection. Here we could also employ extensive use of film and video to allow these cultures to come alive for us. Movies such as Chac, a Mayan language story, or an excellent P.B.S. show on the Indian cultures of our southwest could be augmented by shows, filmed partly on location, showing the land, architecture, clothing, literature, science, agriculture and ways of life of the many cultures of the earth. With the addition of new, well illustrated books on cultural history,

we could give our children, from elementary school age on, a diverse and rich experience of the various cultures as well as the geographical features that shape our earth. Children could even make their own video tapes, and see themselves on television acting out the experiences of these different cultures. Through classroom television, our whole world, including the animal kingdoms and the changing features of the land and sea, could come alive for our children, so that the children grow up with a deep respect for the earth, its people, its cultures, its various species, and its evolution and history.

Indeed, the actual teaching of history and geography can grow out of this new cultural paradigm. Even over that miniscule moment of time we call 'history,' there is no fundamental culture. Cultures are dynamically composed of one another. There is no one model for all cultures. There are numerous models, each describing a certain set of cultural phenomena, the parameters of which overlap, and involve one another. Within individual cultures, we find the same patterns of interconnection between different aspects of the life of the culture. The interweavings of economic, artistic, agricultural, architectural, scientific, and other areas are themselves dynamically composed of one another. Thus we see both the unity and the rich diversity of life and experience on this planet. Different values emerge, values of respect, tolerance, appreciation and awareness.

Thus we have shown how the internal curriculum of kinetic education, which can lead to a lifetime of psycho-physical health and fitness, can provide a basis of experience for an enhanced external curriculum of modern science, mathematics, geography and cultural history within the high

technological environment of computers, telecommunications, and electronic educational systems, all of which enhance that new method of science, the pursuit of understanding and the new goal of education, the realization of wisdom.

A simple beginning: experience and perspective.

In practical terms, then, how do we bring about these essential changes in education? Unlike the Japanese we do not now have the strength, intelligence or will to proceed on such a path. We need to work slowly, surely, and flexibly to develop such a profound educational system. We do have a number of models we can draw from, classical models, western models, and highly successful Japanese models.

First, we start with kinetic education and integrate the disciplines of awareness training and psycho-physical cultivation directly into our present physical education calsses. For five to ten minutes at the beginning or end of each class we could provide a brief direct experience of awareness training, self-activated pressure points and movement exercises, all leading to the cultivation of psycho-physical development and education. In additon to physical education classes, we could start each traditional class period with a minute or two for relaxation, centering and balance, employing tools of psycho-physical cultivation such as the eye exercises and pressure points for sight and stress currently employed in the Chinese schools. Taking into account the Japanese corporate method of beginning each shift with a brief ten or so minute period of psycho-physical exercises, we could also begin each school day or work shift with a similar brief period of psycho-physical exercise. We could turn the present drive for enforced prayer in the schools

to a short period of quiet meditation, where each student would be free to meditate or pray as their religious conviction dictates, quietly to themselves, respectful of one another, and without trying to impose their form of prayer or meditation on anyone else. Such a presentation can underline the important point that psycho-physical cultivation is not the property of any one religion or culture, but can be used to enhance not only our health and fitness but also our chosen spiritual direction.

The electronic classroom.

In the corporations, the bottom line economic value of kinetic education and psycho-physical cultivation of health and fitness are already apparent in Japan, and would soon be apparent for us. The corporate world could give us a needed base to move to the world of education. Corporations, particularly those dealing with electronic technology such as computers, telecommunicatons and television, should work in cooperation with our school systems and begin to create the vibrant environment of the electronic classroom. Apart from the profound national interest of a well educated, healthy, alert population, our corporations cannot be blind to the fact that they are reaching future customers and training future employees at an early age. After all, we could draw on free-market competition to help provide the necessary tools for an electronic educational environment, and to help us in the skillful production of the necessary software such as appropriate cross-cultural and cross-disciplinary films, television programs, and necessary communication media.

Using the present state of the art technology, we could tie our schools into a multi-channel educational cable television network, featuring a

variety of shows for different grade levels and disciplines. In fact, we need to carefully examine the experience of both the Europeans and the Japanese in educational television, and create our own educational cable television network, directly tied in to the schools and to the homes of students, teaching cultural history and modern science as well as practical skills. Much of Japanese educational television already offers a number of courses in job related practical skills. In America as well as in Japan, our employment future seems to be in high technology as well as in agriculture and industry. By extrapolation, we can see how the world of high technology can help us enhance other practical pursuits, such as agriculture, industry, business and health.

The electronic classroom presents us with another powerful opportunity -- the chance for children to make their own television shows, using their innate and trained sense of visual literacy to promote the disciplined study of traditional literacy. For instance, in the study of English literature, children could see quality examples of Shakesperian plays, such as those produced at the Old Vic and filmed by BBC. Then the children could read and study the actual plays, the exquisite language as well as the cultural context, and then make a video tape of their own production of Shakespeare. I know this is possible, for in elementary school, in the summer between second and third grades, both I and other children in my neighborhood produced, directed, costumed and acted in Macbeth; between third and fourth grades, Treasure Island; between fourth and fifth grades, Hamlet; between fifth and sixth grades, Romeo and Juliet. We did it -- so it's possible. And we did not even have the added incentive of "seeing

ourselves on television." We could extend this method of communication training to any works of art and literature, including the great Greek tragedies (having the children make their own masks based on those used in the classic Greek drama) and the great puppet dramas of the Japanese Shakespeare, Chickamatsu, for masks and puppets work extraordinarily well on television. Therefore children will have a chance to view the presentation of great works of myth, literature and culture, they will have a chance to produce, direct and act in them. Thus we can use visual literacy as a spur to the accomplishment of actual literacy, and provide a powerful lesson in the comprehensive art of the literacy of communication. Children will have an opportunity to view such shows as well as to develop them, even teaching themselves the concepts of higher math and physics as well as cultural history and the arts of the literacy of communication, with which they can make their own connections.

Conclusion.

In conclusion, I am proposing:

1. A national campaign for psycho-physical health and fitness.
2. A direct appeal to corporations to promote such a program, in their own material interest as well as in the national interest.
3. A national kinetic education television show designed to educate us in the tools necessary for internal and external psycho-physical health and fitness.
4. The creation of the multi-channel electronic classroom, the complementary creation of a practical national educational cable television network, and the culturally and scientifically

appropriate "software."

5. The use of a simple form of kinetic education, based on an American version of psycho-physical cultivation which includes awareness training, self-activated pressure points, and internal and external movement exercises, to begin the school or work day and to begin and/or end each period of physical education. An abbreviated one or two minute version designed to promote balance, relaxation, alertness, concentration and centeredness, as well as specific points to help the eyes, could be used before each short class period, or as psycho-physical coffee breaks to enhance the productivity of the working day.

6. A program of teacher training which uses a simple and abbreviated form of kinetic education for most home room and subject matter teachers, and uses a longer form, involving more extensive training, for physical education teachers. In business, we can again teach the short form to office or factory managers to pass on to everyone, and the long form to specially designated associates who could lead the psycho-physical practices to begin each shift and also, with further training, provide psycho-physical counseling designed to promote employee health and fitness as well as corporate health and fitness. Such a program can lead to increased productivity and quality of performance and output.

7. The creation of clinics for psycho-physical health and fitness: corporate clinics, school clinics, store front clinics, neighborhood

community clinics, perhaps all tied in with a special cable channel for teaching kinetic education and the art of psycho-physical cultivation.

8. A national campaign designed to encourage families to practice psycho-physical cultivation, and to help each other on the path to psycho-physical health and fitness, thus strengthening the family itself.

9. A cooperative national health policy designed to use psycho-physical cultivation and kinetic education as the basis for long term promotion on a national scale of psycho-physical health and fitness. After exercising our constitutional right to abolish the ridiculous restrictive medical practice laws, we should encourage the growth of different systems of eastern and western traditional medicine, so that we can once again experience a rich mosaic of health care.

10. Such a program could become the basis for a national program of health care in other countries, especially those that lack a powerful living tradition of classical health care.

Therefore, "just physical education" can become kinetic education, the cornerstone of our approach to the realization of the body/mind continuum, to direct experience and awareness of the nature of reality and of ourselves, and to the life long cultivation of psycho-physical health and fitness. "Just physical educaton" can provide a transition from the old paradigm of the cult of rationality to the expanded paradigms of modern physics, classical cultures, and electronic technology. Since how we view the body will help

structure our entire cultural approach to education, economics, organization and government, kinetic education, with its expanded parameters of attitude, awareness, and cultivation, will provide us with a conscious experience of the qualities, tools and structures we will need in our future evolution. At the least, kinetic education will help us to overcome the problems of mis-education, carefully enumerated by John Dewey, and endemic in our present educational mess. Kinetic education can answer John Dewey's call for true psycho-physical education, an approach which can overcome the dangers of undisciplined mis-education we so plainly see in our present system.

# FOOTNOTES

# FOOTNOTES

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CHAPTER X - Paradigm of the Body/Mind Continuum

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classes at John F. Kennedy University and at College of Marin. A number of M.D., nurses and lay people have told me how such analogies allowed them to experience that sudden leap of comprehension, and to understand what they had considered strange and foreign.

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27. Time, Oct. 27, 1981.

28. Ibid.

29. From an interview with William Ouchi, San Francisco Chronicle, Aug., 13, 1981.

30. Ibid.

31. A report commissioned by the Health Insurance Association of America shows that company "wellness" programs are saving employers millions of dollars in reduced health care and time off costs. Conducted by Dr. Charles A. Berry, former chief medical director of the U.S. space program, the study offers "persuasive evidence that there is profit for a company in keeping its employees healthy." The president of the HIAA, James Morefield, states:

> "Based on the kind of money we spend on health care now, and the kind of savings Dr. Berry's study has uncovered, we believe wellness programs applied at the workplace can save American industry tens of billions of dollars."

CHAPTER XIII - Conclusions: The Implications of Psycho-Physical Cultivation, the Body/Mind Continuum and The Holistic Paradigm.

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## Interviews

The subject matter of these interviews is covered in "An Explication of the Research for Each Chapter" in Appendix I. The interviews are here listed by chapter, in order of appearance in the footnotes.

Bryn Beorse (Berkeley, 1978-1979)
Robert Smith (San Francisco, July, 1979)
Ben Lo (San Francisco, July, 1979)
Master Choy (San Francisco, June, 1976)
Jeffrey Lim (San Francisco, Jan., 1981)
Angela Longo (San Francisco, Dec., 1980)
Po Hing Po (San Francisco, Sept., 1976)

M. Frederick Lionel (Paris, Aug., 1974)
Lauren Berry (Redding, Dec., 1979)
Victor Santa (San Francisco, Jan., 1981)
Dr. Landon Rice (Oakland, CA, Feb., 1981)

Sant Keshavadas (Richmond, Va., March, 1973)
Chitras Das (San Francisco, May, 1977)
Baba Hari Das (Santa Cruz, July & Aug, 1976)
Dr. Rick Kozlenko (San Francisco, Jan., 1979)
Jim Feil (Berkeley, Jan., 1981)
Jill Rosenbloom (San Francisco, June, 1977)

Maizumi Roshi (Boulder, July-Aug., 1977)
Koichi Tohei (San Francisco, Aug., 1977)
Paul Reps (San Francisco, Oct., 1977)

H. H. Dilgo Khentze (Seattle, March, 1977)
H. H. Sakya Trizin (San Francisco, May, 1978 and New York, Aug., 1978)
H. H. Dudjom, R. (San Francisco, June, 1980)
Dr. Lobsong Dolma (San Francisco, June, 1978)
Dr. Nyima-la (New York, Aug., 1978)
H. H. Karmapa (San Francisco, Feb., 1978)
Chime, R. (Chamonix, France, July, 1975)
Dezung, R. (San Francisco, June, 1979)
Gyaltrul, R. (San Francisco, Nov., 1977)
H. H. Dagshen R. (Seattle, March, 1977)
Joe and Guin Miller (San Francisco, 1975-present)
Dr. Rina Sircar (San Francisco, 1977-present)
Mahasi Sayadaw (San Francisco, Feb., 1979)
Taungpula Sayadaw (San Francisco, Oct., 1978)
Goenka (San Francisco, Sept., 1980)

Mary Burmeister (San Francisco, May, 1979)
Diravamsa (San Francisco, Jan., 1977)
Stuart Heller (Orinda, Ca., Dec., 1980)
Marcia Frick (San Francisco, Aug., 1981)

# APPENDIX

I An Explanation of the Research for Each Chapter

# APPENDIX

## I. AN EXPLICATION OF THE RESEARCH FOR EACH CHAPTER

### CHAPTER II: THE CULT OF RATIONALITY

Much of the background for this chapter comes from extensive interviews with Bryn Beorse, Norwegian scientist, economist and banker. Houston Smith's Forgotten Truth (Harper Colophon, New York, 1976) provided a context for viewing the religious aspects of scientism, while Jonathan Spence's To Change China (Penguin Books, New York, 1980) provided some fascinating examples of the missionary aspects of the cult of rationality. In addition there were some useful examples in Fritjof Captra's as yet unpublished The New Physics: A Basis for Social Change. Ironically, many of his comments paralleled those of Beorse. In addition, Ronald Valle's "Relativistic Quantum Psychology" Chapter 21 in his Metaphors of Consciousness (Plenum, New York, 1981) provided useful examples from the realm of psychology. Thomas Kuhn's The Structure of Scientific Revolutions (U. Chicago Press, Chicago, 1970) also deeply influenced my work.

### CHAPTER III: THE NEW PHYSICS AND THE OLD WAY

Once again, Bryn Beorse was instrumental in enumerating the implications of modern physics for such fields as economics. Capra's The Tao of Physics (Bantam Books, New York, 1977) and Gary Zukav's The Dancing Wu Li Masters (Morrow, New York, 1979) both provided a clear investigation into the new physics. Capra's unpublished The New Physics: A Basis for Social Change gave some provocative implications for various fields. Once again, his work closely parallels the perspective of Beorse. George Leonard's The Silent Pulse (Bantam, New York, 1981) puts these concepts into relatively clear laymen's language. Valle, in The Metaphors of Consciousness (Plenum, New York, 1981) continues his exploration of the implications of the new physics for psychology. However, the most important influence is from Geoffrey Chew, whose bootstrap model is presented in the articles mentioned in the footnotes.

### CHAPTER IV: THE CLASSICAL APPROACH

Much of the material in each section of this chapter has come from interviews.

#### CHINA

Here the background interviews were with T'ai Chi masters Ben Lo (San Francisco, July, 1979) and Master Choy (San Francisco, June, 1976); student and teacher of Chinese Character movement Jeff Lim (San Francisco, Jan., 1981); Chinese physician and acupuncturist Po Hing Po (San Francisco, Sept., 1976); student and teacher of Chinese acupuncture, Angela

Longo (San Francisco, Dec., 1980); and martial arts practitioner and historian, Robert Smith (San Francisco, July, 1979). There are many editions of the Chinese classics, I Ching, Tao Te Ching, Chuang Tzu and others. These were all useful, as was Stephen Chang's The Book of Internal Exercises (Strawberry Hill Press, San Francisco, 1978). For further explorations of Taoism, John Blofeld's Taoism - The Road to Immortality (Shambala, Boulder, 1978) provides a good general overview. For a deeper exploration (in somewhat strained English), there is the Taoist Master Ni, Hua-Ching's The Taoist Inner View of the Universe and the Immortal Realm (Shrine, Malibu, 1979) and his The Subtle Universal Response (Shrine, Malibu, 1979). At present, these are the two most authentic and in-depth books on Taoist practice available in America. For Chinese medicine, of course, I have drawn heavily on the Confucian classic - The Yellow Emperor's Classic of Internal Medicine, translated by Ilya Veith (U.C. Press, Berkeley, CA., 1972).

GREECE

Greece presented more of a problem, so I drew heavily on notes from college classes as well as original sources such as Hippocrates, trans. by W. Jones (Harvard, Cambridge, 1923); Plato's Dialogues (Oxford Press, Oxford, 1892), translated by B. Jowett. Will Durant's The Age of Greece (Simon and Schuster, New York, 1939) also refreshed my memory. In the medieval secton, I conducted extensive interviews with M. Frederick Lionel (Paris, Aug., 1974). The scope and depth of his knowledge, as well as his bilingual eloquence, was a major influence in developing this perspective. In addition, interviews with Lauren Berry (Redding, CA., Dec., 1979) and Victor Santa (San Francisco, Jan., 1981) illuminated much about classical Greek healing practices. At some point I would like to write more about Lauren Berry's brilliant and fascinating practice of what he calls "physical medicine," which he traces back through the centuries to Ancient Greece itself.

INDIA

Again interviews have provided a strong basis for this chapter. For the general Indian spiritual perspective, I interviewed Sant Keshavadas in Richmond, Va., March, 1973. Later I also interviewed Baba Hari Das in Santa Cruz in July, 1976, and in Aug, 1976 interviewed him extensively about Ayurvedic medicine. In January of 1979, in San Francisco, I interviewed Rick Kozlenko about his use of Ayurvedic medicine in his practice. In May, 1977, In San Francisco, I interviewed Chitras Das about his specialty, Indian Kahtak dance. The following month, I interviewed Jill Rosenbloom regarding Kathkali, the South Indian dance form. In January, 1981, Jim Feil was interviewed regarding Dr. Randolph Stone's polarity therapy, an adaptation of aspects of Ayurvedic healing to western mind. Rudolf Ballentine's Diet and Nutrition, a Holistic Approach has an excellent section on Ayurvedic medicine and its application to nutrition. To set the tone of the chapter I used some of the standard quotes from the sacred Indian scriptures, the Upanishads and the Bhagavad Gita. Although Capra used some of the same quotes in the chapter on India in the Tao of Physics, these same passages are quoted in just about any book on Indian spirituality.

In the bibliography are numerous texts on Yoga and Indian culture and spirituality. However, by far the best texts, analagous to the Taoist texts of Master Ni, and showing the same depth of experience, are those by Jaideva Singh, Sparda-Karikas: the Divine Creative Pulsation; Pratyabhiyvahadayan: The Secret of Self Recognition; Vijnavabhairava or Divine Consciousness:A Treasury of 112 Types of Yoga; and Siva Sutras: The Yoga of Supreme Identity, all by (Motilal Bavarsida, Delhi, 1978). Singh's work shows that essential experience of understanding.

JAPAN

For this short sequence I interviewed Zen master Maizumi Roshi, who comes from a long line of Samurai Zen roshis (Boulder, July - Aug., 1977). Also in late Aug., 1977, in San Francisco, I interviewed Koichi Tohei, a noted Japanese Akido master, visiting here temporarily. Later that year in Oct., 1977, I spent some time conversing with Paul Reps, author of Zen Flesh, Zen Bones (Anchor Books, New York, 1974). Reps book, as well as Philip Kapleau's Three Pillars of Zen (Beacon Press, Boston, 1967) were helpful in compiling this short section.

TIBET

There are many books in English on Tibet and Tibetan Buddhism. Most all of these I have read, and some of them I have included in the bibliography. Yet almost all of the background material for this text comes from intensive interviews. Each of these interviews usually covered a range of Tibetan subjects, including Tibetan history and culture, Tibetan medicine, Tibetan meditation and yogic practices, and Tibetan psycho-physical exercises. Thus, except for some of those interviews dealing with medicine, the interviews covered the interwoven areas. Those interviews regarding primarily the medical area were with Dr. Lobsong Dolma (San Francisco, June, 1978), Dr.Nyima-la (New York, Aug., 1978), H. H. Sakya Trizin (San Francisco, May, 1978), and (New York, Aug., 1978). H. H. Sakya Trizin was also interviewed regarding the whole fabric of Tibetan culture, education, and yogic practice. Also interviewed regarding this whole Tibetan continuum were H. H. Dilgo Khentze (Seattle, March, 1977), H. H. Dudjom, R. (San Francisco, June, 1980); H. H. Karmapa, (SanFrancisco, Feb., 1978); Dezung R. (San Francisco, June, 1979); Chime R. (Chamonix, France, July, 1975); Gyaltrul R., (San Francisco, Nov., 1977); H. H. Dagshen R., (Seattle, March, 1977). In addition, I have had extensive talks with Joe and Guin Miller, who were acquaintances of Evans-Wentz, the early translator of Tibetan texts. These interviews set the tone and the stage for this part of the text.

BURMA

Again much of the background information for this part of the text comes from interviews. My main source has been Dr. Rina Sircar (extensive interviews, San Francisco, 1977-1981). Dr. Sircar has covered the whole gamut of Burmese Buddhist culture and spiritual practice. In particular, she has explained in great depth and detail the Burmese practice of awareness

and insight meditation as well as the Burmese approach to healing. I have also had the opportunity to interview Mahasi Sayadaw (San Francisco, Feb., 1979) and Taungpula Sayadaw (San Francisco, Oct., 1978).

## CHAPTER V: CLASSICAL HEALING SYSTEMS: MODERN APPLICATIONS

Once again, interviews played a pivotal role in creating this part of the text. I drew on interviews (already mentioned) with H. H. Sakya Trizin on Tibetan medicine, Dr. Rina Sircar on Burmese healing practices, and Po Hing Po on Chinese five element theory. Dr. Angela Longo was also interviewed on Chinese medicine, as was Dr. Lobsang Dolma on her Tibetan birth control pill. Three additional interviews were added: Diravamsa, a Thai teacher, was interviewed about the nature of education, medicine, massage, and meditation in Thailand (San Francisco, Jan., 1977). Jim Feil was interviewed about the appplications of Stone's Polarity Therapy to America in (Berkeley, Jan., 1981), while Mary Burmeister was interviewed about the history, art and evolution of Japanese Jin Shin Jytsu acupressure practice in (San Francisco, May, 1979).

In addition, the Barefoot Doctor's Manual (Running Press, Philadelphia, 1977) and An Outline of Chinese Acupuncture (Foreign Languages Press, Peking, 1975) were instrumental in preparing the segments on China, as was Dianne Umemoto's "The Not-so-Gentle Art of Thai Massage," Asia, (Nov./Dec., 1980) in preparing the segment on Thailand.

## CHAPTER VI: THE EFFECTS OF RATIONALITY: THE STORY OF MEDICINE IN 19TH CENTURY AMERICA

Much of the research for this chapter is found in Harris L. Coulter's Divided Legacy: A History of the Schism in Medical Thought, Volume III, Science and Ethics in American Medicine, 1800-1914. I have also drawn on Richard Grossenger's Planet Medicine: From Stone Age Shamanism to Post Industrial Healing. Ivan Illich's Medical Nemesis: The Exporpriation of Health has also been helpful, especially for its extensive footnotes. Richard Mendelsohn's Confession of a Medical Heretic and John Knowle's Doing Better and Feeling Worse, also contained useful information.

## CHAPTER VII: MODERN TIMES IN THE WEST

This chapter owes much to the interview with Stuart Heller, a movement education specialist, and my colleague at John F. Kennedy University. The chapter builds on the usual texts, the collected works of F. M. Alexander, Moshe Feldenkrais, Wilhelm Reich and Alexander Lowen. Yet Heller's perspective on their work vaulted me beyond the usual perspective on such Western practitioners to seeing them as unknowingly and yet egotistically practicing various forms of western T'ai Chi. Heller's own work in this field is brilliant, and begins in this ground of western T'ai Chi where the others slough off. If there had been more time and space, I would

have liked to include a practitioner's appendix, in order to present the Harmonic Re-Patterning of Stuart Heller and the Physical Medicine of Lauren Berry. Two sections of one other book need special mention. In F. M. Alexander's The Resurrection of the Body (Delta, New York, 1974), Edward Maisel's lengthy introduction is full of quotes from such as Aldous Huxley and G. B. Shaw that we would do well to look at today. However, a veritable god mine of relevant quotes and provocative perspectives can be found in John Dewey's Preface to Alexander's work. This Preface from the father of American education, comprises an invaluable historical document, yet one strikingly relevant to today's dilemma. Thus I have quoted Dewey extensively, and also woven in some quotes from Maisel's Introduction.

## CHAPTER VIII: FLY IN A WORLD OF WEBS

Here we draw on the collected works of Marshall McLuhan and Buckminster Fuller, especially McLuhan's Understanding Media and Fuller's Operating Manual for Spaceship Earth. In effect, I use the combined ideas of Fuller and McLuhan as a springboard from which to delve into our own personal and cultural web-world, and to delineate the experiences of ourselves and our children within the electronic context of web-world's constant dynamic interaction.

## CHAPTER IX: HOLOGRAM, HOLOWORLD, HOLOBODY

For background, this chapter draws extensively on the works of David Bohm, especially his Quantum Theory and Beyond in Foundations of Physics (University Press of America, 1978). Also included are the works of Karl Pribram, including Languages of the Brain - Experimental Paradoxes and Principles (Prentice-Hall, New Jersey, 1976), "The holographic hypothesis of memory structure in brain function and perception" in Atkinson, R.C. et. al. eds Contemporary Developments in Mathematical Psychology (Freeman, San Francisco, 1974) and "Problems concerning the structure of consciousness" in Globus, G.G. et. al. eds., Consciousness and the Brain (Plenum, New York, 1976). Also, the chapter draws from Ilya Prigogene's A Dialogue with Nature (Doubleday, New York, 1981). A brief application of this sort of material to nursing is contained in Patricia Flynn's Holistic Health: The Art and Science of Care (Prentiss-Hall, Maryland, 1978). However, the most extensive and comprehensive presentation of this material comes from Marilyn Ferguson. She lays the background for this in Brain Revolution (Bantam, New York, 1973). She expands more specifically in articles in Brain/Mind Bulletin and Revision, including "Prigogine's Science of Becoming", Brain/Mind Bulletin (4, 1-4, 1978), "Karl Pribram's Changing Reality", Revision (1, 3, 4, 8-13, 1978) and "A New Perspective on Reality", Brain/Mind Bulletin (3, 1-4, 1978). She ties all this together in a comprehensive and challenging way in The Aquarian Conspiracy - Personal and Social Transformation in the 1980's (Tarcher, L. A., 1980). I have drawn extensively from her chapter on "Liberating Knowledge: News from the frontiers of science," to set the stage for advancing my own view of the holographic body/mind continuum.

## CHAPTER X: PARADIGM OF BODY/MIND CONTINUUM

This chapter contains my own synthesis, my own theoretical and practical exploration, of the ideas presented in the previous chapters.

## CHAPTER XI: AN AMERICAN MODEL FOR KINETIC EDUCATION

My background information in this chapter comes from the originator of the system of applied kinesiology, Dr. George Goodheart, especially his Applied Kinesiology Research Manuals (Detroit, 1964-79). In addition, Dr. David Walther's Applied Kinesiology (Systems D. C., Pueblo, Colo., 1976) has also been informative. Dr. John Thie's manual for lay people Touch for Health (De Vorss, Marina Del Rey, Ca., 1979) is also an excellent source, as are Clem Thompsons's Manual of Structural Kinesiology (Mosley, St. Louis, 1969) and Kendall, and Kendall's Muscles: Testing and Function, (William and Wilkins, Baltimore, 1971). However, the chapter features my own analysis and synthesis, first in presenting this specific material through the context of the dissipative holographic bootstrap mosaic, and second in utilizing three of the aspects of applied kinesiology as a simple and clear basis for kinetic education.

## CHAPTER XII: JAPAN: THE HOLISTIC PARADIGM AND EXPERIENTIAL TRAINING

This chapter draws on Ezra Vogel's Japan as Number One (Harper, New York, 1959) for the basic background of Japanese success in corporate competition. William Ouchi's Theory Z: How American Business Can Meet The Japanese Challenge has also been helpful. Yet both ignore Japan's secret weapon. So I examined books such as Tokujiro Namikoshi's Shiatsu Therapy: Its Theory and Practice (Japan Publ., San Francisco, 1974), as well as Masunaga's Zen Shiatsu (Japan Publ., San Francisco, 1977) and Ohashi's Do-It-Yourself Shiatsu (Cutton, New York, 1976). Muramoto's Healing Ourselves (Avon, New York, 1973) and DeLangre's Do-In, Volumes 1 and 2 (Happiness, Hollywood, 1971 & 1978) were also useful. The most valuable of these books was Katsusuke's Tsubo - Vital Points for Oriental Therapy (Japan Publ., Tokyo, 1977). The premise of the chapter is my own.